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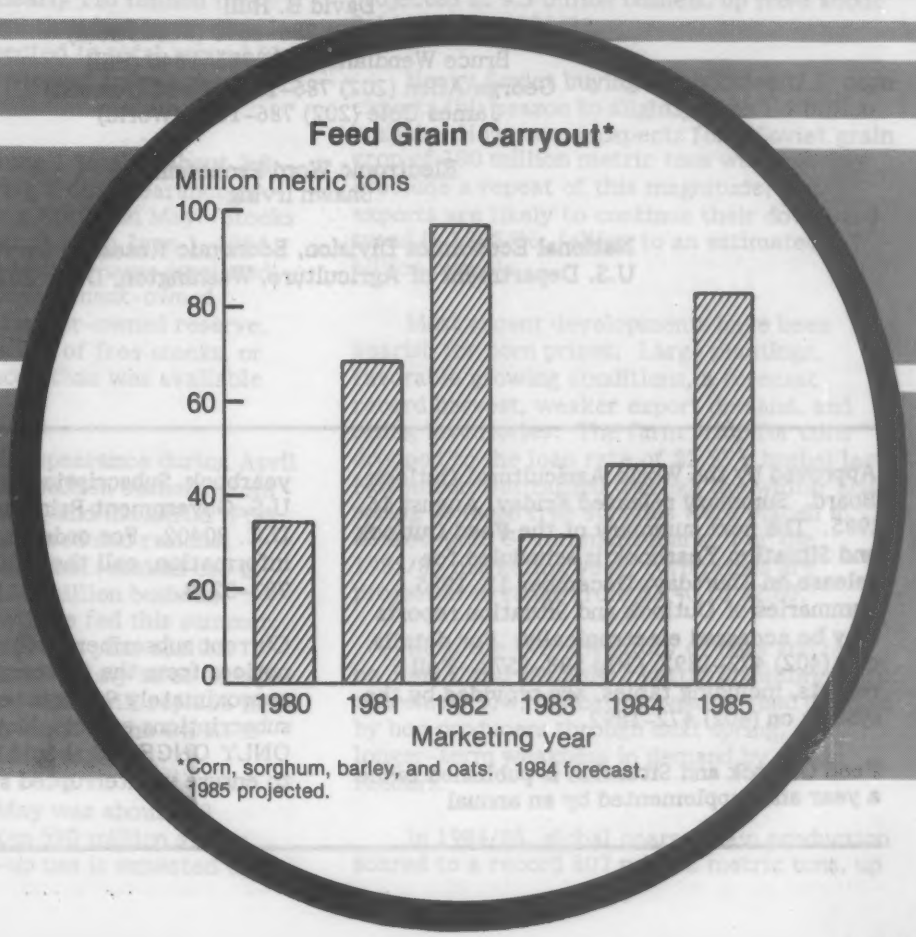

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SUMMARY

Feed grain ending stocks are projected to build to 83 million metric tons next season, up nearly 80 percent from 1984/85. Farm prices will be supported by loan rates, and deficiency payments will constitute an important part of grain producers' net income.

Stocks will be bolstered by expected record crops of corn, sorghum and barley, and a larger oat harvest. Total feed grain production in 1985 is forecast at 257 million tons, 21 million above last year. The feed grain supply for the 1985/86 marketing year is forecast at 305 million tons, about 36 million above a year earlier.

Production of 21 million tons of new-crop barley and oats, added to beginning stocks and imports, yields an estimated July-September feed grain supply of nearly 110 million tons, almost 10 million more than last year. Stocks on October 1 are expected to total around 61 million, up nearly 40 percent from a year earlier.

Corn stocks on June 1 totaled about 2.8 billion bushels, implying a disappearance of about 1.1 billion during April and May. Stocks were 32 percent larger than on June 1, 1984. However, 609 million bushels were insulated from the market in Government-owned inventories or in the farmer-owned reserve, leaving 2.2 billion bushels of free stocks, or roughly 30 percent more than was available last year.

Domestic corn disappearance during April and May was about 823 million bushels, from 206 million in food, seed, and industrial (FSI) uses, and 617 million in feed and residual uses. For the year, feed and residual use is expected to reach 4,150 million bushels, implying 706 million will be fed this summer, compared with 553 million a year earlier. Although wheat feeding is likely to be heavy this summer, wheat probably will replace more sorghum than corn, as much of the wheat is fed in sorghum-producing regions.

FSI use through May was about 643 million bushels, up from 590 million a year earlier. The stepped-up use is expected to continue, with 422 million bushels projected for June-September. Anticipated FSI use for the year was recently revised upward to 1,065 million bushels, based on reports of increased shipments of high-fructose corn syrup during first-half 1985.

The area planted to corn this season (83 million acres) was relatively large, given the 5 to 6 million acres in conservation uses and reports of severe financial problems for farmers at planting time. Corn area harvested for grain is forecast to climb to nearly 75 million acres. Yields are forecast at 110.6 bushels per harvested acre after a near-perfect planting season. With only spotty weather stress this summer in major producing regions, the harvest may approach 8.3 billion bushels. The 1985/86 corn supply is projected at 9.5 billion bushels, up from about 8.4 billion in 1984/85.

Heavy Soviet buying has boosted U.S. corn exports this season to slightly over 1.9 billion bushels. However, prospects for a Soviet grain crop of 190 million metric tons will probably preclude a repeat of this magnitude, and exports are likely to continue their downward trend in 1985/86, falling to an estimated 1.7 billion bushels.

Most recent developments have been bearish for corn prices: Large plantings, favorable growing conditions, a forecast record harvest, weaker export demand, and rising inventories. The farm price for corn dropped to the loan rate of $2.55 a bushel last November, but rallied through the winter and spring as more free supplies were placed in nonrecourse Government loans. For the 1985/86 marketing year, corn prices are projected to range from $2.40 to $2.60.

Both the U.S. inventory of hogs and pigs on June 1 and the July 1 cattle inventory were extremely low, indicating weaker feed demand by hog producers through next spring, and longer-term weakness in demand by cattle feeders.

In 1984/85, global coarse grain production soared to a record 807 million metric tons, up

about 121 million from the unusually low outturn the previous year. Production is forecast to soar again in 1985/86, due to improved crops in some countries, and continued large harvests in others. Export competition remains keen, as production picks up in major importing nations and import demand diminishes.

Conditions for the 1985/86 coarse grain crop in the EC-10 remain above average, and another excellent harvest is forecast. The same is true for China, where production is likely to approach last year's level. The Soviet coarse grain crop is forecast at 95 million tons, up 9 million from 1984/85.

Production by major foreign exporters, projected at more than 64 million tons for 1985/86, continues strong.

World imports in 1985/86 are forecast to fall below 95 million tons, due mainly to substantially reduced Soviet imports (down 10 million tons to 18 million), diminished import demand in Western Europe, and a sluggish Japanese market. U.S. corn exports may account for 69 percent of the world market, compared with 75 percent in the early 1980's. The U.S. share of the sorghum market, however, may advance from under 50 percent in the early 1980's to 58 percent in 1985/86, largely on the strength of expected Japanese purchases.

FEED GRAIN SUPPLY AND USE

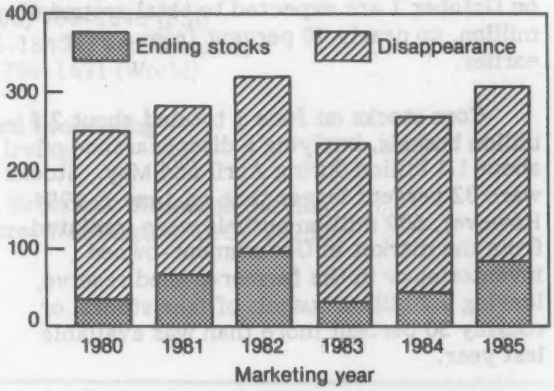
Total feed grain production in 1985 is forecast at 257 million metric tons, 21 million above last year. Record production is forecast for corn, sorghum, and barley, and an increase is also estimated for oats. Corn will account for 82 percent of total feed grain production. The total feed grain supply for the 1985/86 marketing year is forecast at 305 million metric tons, about 36 million above 1984/85.

Ending stocks of feed grains are projected to build to 83 million tons next season, up nearly 80 percent from 1984/85. Farm prices will be supported by loan rates, and deficiency payments will constitute an important part of grain producers' net income.

Feed grain disappearance during April and May was 34.6 million metric tons, only .8 million more than a year earlier. Exports of 9 million tons were .6 million less than a year earlier, and indicate that foreign demand is slowing as the feed year progresses.

Domestic disappearance in April and May edged up 1.4 million tons over a year earlier to 25.6 million. Both food, seed, and industrial (FSI) and feed and residual categories experienced modest increases. Strong demand for processed products--ethanol and especially high fructose corn syrup (HFCS)--has provided steady growth in FSI disappearance, while generally low prices have boosted feed demand.

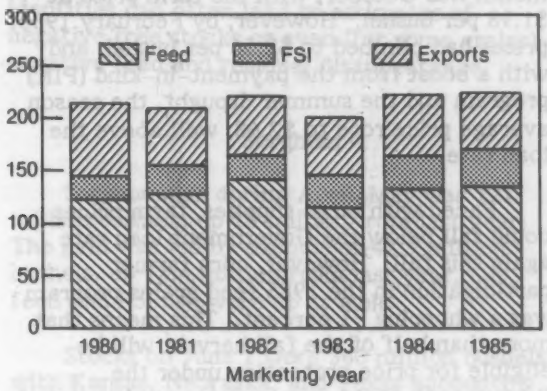
Disappearance and Ending Stocks*



*Corn, sorghum, barley, and oats. 1984 forecast. 1985 projected.

Grain consuming animal units (GCAU'S) are up about 560,000 over last year, indicative of stronger feed demand. Declines in GCAU's from the hog and nonfed beef sectors were offset by increases in poultry and cattle on feed, bringing the 1984/85 GCAU total to 78.8 million units. Heavy slaughter weights for fed cattle and hogs imply more feed use per head in recent quarters than the animal units would indicate. For the current feeding year (ending September 30), feed and residual disappearance is expected to jump to 131 million tons, 14 million more than last year, but 10 less than 2 years earlier.

Feed, FSI, and Export Disappearance*



*Corn, sorghum, barley, and oats. 1984 forecast. 1985 projected.

Production of 21 million tons of new-crop barley and oats added to beginning stocks and imports gives an estimated feed grain supply for June-September of 110 million tons, almost 10 million more than last year. If disappearance during June-September totals 49 million tons as projected, stocks on October 1 will be 61 million, nearly 40 percent more than a year earlier.

Wheat feeding is expected to be heavy for the third year in a row. Although less than the 10 million tons that were fed last summer, feed wheat could provide another 7 million tons of feed this summer in addition to the projected feed grain use of 23.3 million.

Corn

Stocks of corn on June 1 were 2,832 million bushels, implying a disappearance of 1,130 million for April and May. These stocks were 32 percent greater than June 1, 1984. However, 222 million bushels were owned by the CCC, leaving privately held stocks at 2,610 million. Of the privately held inventories, 387 million bushels are also insulated from the market in the farmer-owned reserve (FOR) over a wide price band, leaving 2,223 million bushels of free stocks on June 1. Even so, free supplies are roughly 30 percent greater than the 1,704 million bushels available on June 1, 1984.

Corn exports during April-May were 307 million bushels, indicating a more than seasonal slowdown in the rate of export. To

Corn stocks on June 1

Item	1984	1985
	Million bushels	
Total stocks	2,145	2,832
CCC inventory	195	222
Private	1,950	2,610
FOR	587	387
Free	1,363	2,223

reach projected exports of 1,925 million bushels, summer quarter exports will have to increase to 461 million.

Domestic corn disappearance during April and May was 823 million bushels, from 206 million of FSI and 617 million of feed and residual. Feed and residual use for the year is expected to reach 4,150 million bushels, implying a summer feeding of 706 million, compared with 553 million a year earlier. Although summer wheat feeding is expected to be heavy, wheat probably will replace more sorghum than corn in feed rations, as much of the wheat feeding occurs in sorghum-producing regions.

FSI use through May was 643 million bushels, compared with 590 million a year earlier. This stepped-up use is expected to continue through the summer, at 422 million during June-September. Estimated FSI use for the year was recently revised up to 1,065 million bushels because of reported increased shipments of HFCS through the first half of the year.

The Statistical Reporting Service estimated corn area planted at 83.2 million acres. While this falls short of the record, it is relatively large, especially in the face of 5 to 6 million acres of corn base idled and reports of severe financial problems for farmers at planting time. The feed grains program was a relatively attractive option for corn farmers this year, with a loan rate of $2.55 and a target price of $3.03 per bushel. Corn area harvested for grain is expected to climb to 74.8 million acres for 1985/86, reflecting plantings and reduced need for corn silage, a consequence of lower cattle inventories.

The projected large area harvested this fall is only half of the story for grain corn

production. Yield per harvested acre is expected to average 110.6 bushels after a near-perfect planting season. Excellent planting conditions with only spotty weather stress this summer in major producing regions have led to an expected harvest of 8,266 million bushels. With imports and carryin from 1984/85, total supply for 1985/86 is projected at 9,509 million bushels, compared with 8,382 million in 1984/85.

Heavy Soviet buying has bolstered forecast exports in 1984/85 to 1,925 million bushels. However, prospects for a 1985/86 Soviet grain crop of 190 million metric tons make a repeat of this year's import activity unlikely. Therefore, corn exports are expected to continue their downward trend, falling to 1,700 million bushels in 1985/86.

Domestic use is expected to climb about 4 percent from 5,215 million bushels in 1984/85 to 5,445 in 1985/86. Part of this growth is expected to come from the steady increase in FSI, from 1,065 million bushels to 1,120 million in 1985/86. Also, because feed costs are expected to remain low through the 1985/86 marketing year, feed use is expected to increase. Feed and residual use of corn is expected to rise to 4.3 billion bushels, up about 4 percent from 1984/85. Feeding rates are likely to exceed usual levels, which would be reflected in higher average slaughter weights for cattle and hogs.

Corn Prices

Most recent developments have been bearish for corn prices: Large plantings, favorable growing conditions, a forecast record harvest, weaker export demand, severe export price competition, and growing inventories. The farm price for corn dropped to the loan rate of $2.55 per bushel in November, but rallied through the winter and spring as more free supply was placed in nonrecourse Government loans.

After a high of $2.70 per bushel in April, corn prices fell to $2.63 in June and July. By the end of July, corn futures contracts for December 1985 were traded in the $2.30 to $2.35 range. These bearish conditions have led analysts to speculate that farm prices could fall below the loan rate of $2.55. In the late summer and fall of 1982, when corn supplies were over 10 billion bushels (9 percent greater than the projected 1985/86 supply) corn prices did fall below the $2.55 loan rate. The low month was October, with the farm price at $1.98 per bushel. However, by February 1983, prices had climbed to $2.56 per bushel, and with a boost from the payment-in-kind (PIK) program and the summer drought, the season average price rose to $2.68, well above the loan rate.

Faced with large supplies, farm prices could fall below the Government loan rate again this fall. However, corn farmer participation in the 1985 feed grains program was a whopping 71 percent. This means that more than half of the fall harvest will be eligible for price protection under the Government crop loan program. As harvested corn enters the loan program, free supplies will dwindle and buyers will have to compete with the loan program to acquire the grain. For the marketing year, farm prices may average between $2.40 and $2.60. However, Congress is still in debate over the new Farm Bill. Speculation about a lower loan rate for 1986/87 has probably already depressed prices. A much lower loan rate would likely depress 1985/86 prices further.

Early Harvest

Although most corn-producing areas were a little too wet for early (March) field work, near-perfect planting conditions prevailed through most of the spring. By June 1, 98 percent of the total area for corn was already planted, compared with 82 to 87 percent in the previous 4 years. Early plantings can lead to better yields, in part because the critical growing periods are over before the hottest, driest parts of the summer. Earlier plantings also lead to earlier harvests, which can cause the supply-demand balance sheet to show anomalous disappearance patterns.

Because the marketing year starts on October 1, inventories of old-crop corn are surveyed as of this date. All production of new-crop corn is treated on the balance sheet as if it were unavailable before October 1. To the extent that new-crop corn is actually harvested and used before the official start of the marketing year (not unusual), summer supplies and disappearance will be understated, while fall supplies and disappearance will be overstated. In a year such as 1985, when the pre-October harvest is

expected to be sizable, anomalies in the supply–demand balance sheet can be substantial. Strict adherence to accounting identities can often lead to estimates of negative free stocks or even (for some grains) negative feed and residual disappearance.

Sorghum

Sorghum use during April–May was 121 million bushels, up 10 million from last year. The gain was led by exports of 42.9 million bushels, up 12.4 million from last year, but feed and FSI use were up as well.

Stocks on June 1 were 360 million bushels, with Kansas, Nebraska, and Texas accounting for about 86 percent of the total inventory. About 244 million bushels were tied up in the FOR and CCC, leaving about 116 million of free stocks including grain under regular loan. This is slightly more than free stocks last year (102 million bushels), although there are greater amounts outstanding under loan this year (46 million compared with 9 million last year) with the potential to enter the FOR or be forefeited to the CCC.

Total use this marketing year will rebound to around 820 million bushels, up from 637 million last year. Even with increased use, carryout is expected to reach 297 million bushels, 40 million above a year earlier, and about the same as 3 years ago.

Exports have been strong this marketing year, with 275 million bushels anticipated, compared with 246 million last year and only 214 million 2 years earlier.

Last fall, at the start of the marketing year, prices received by farmers were running as much as 20 percent below a year earlier, but in recent months, as little as 6 percent below. The low month so far this season was November at $2.26 per bushel, while the high month was May at $2.55. For the marketing year, the farm price is expected to average $2.40 per bushel, or $4.29 per hundredweight.

Large Sorghum Crop in Prospect

Based on August 1 crop conditions, this year's grain sorghum crop is estimated at a record 1,048 million bushels, 21 percent larger than last year's bumper crop from a harvested area of 16.2 million acres and an average yield of 64.9 bushels per harvested acre.

The July Crop Production report showed a continuation in the recent trend of sorghum area to expand eastward from the Central and Southern Plains. In 1982, 74 percent of total sorghum area was planted in Kansas, Nebraska, and Texas. By 1984, these three States accounted for only 65 percent. In 1985, the share dropped to 60 percent (10.7 million acres of a total 17.9 million). In contrast, the share in Alabama, Arkansas, Mississippi, Missouri, Tennessee, and Illinois jumped from 10 to 19 percent by 1984, and further to 25 percent in 1985. Sorghum is replacing soybeans in these States. While sorghum and soybeans may both be double-cropped with winter wheat, sorghum is more drought-resistant, and doesn't have the nematode problem that plagues soybeans in the South.

While production is increasing, exports of sorghum are expected to remain static at 275 million bushels, while feed use may rise by 25 million. Thus, carryout for 1985/86 is expected to increase over 200 million bushels to 500 million, about 59 percent of use. These supplies, plus abundant supplies of other feed grains, notably corn, will keep the season average price near the loan rate, or in a range of $2.25 to $2.45 per bushel.

Barley

Total disappearance of barley in 1984/85 was a record 548 million bushels, exceeding the previous year's record by about 5 million. Although exports declined 15 million bushels, feed and residual disappearance shot up to 300 million. The season average price received by farmers in 1984/85 was $2.30 a bushel, down 20 cents from the 1983/84 average of $2.50. Prices started high in June 1984 and experienced a near-steady decline thereafter, achieving a low in April of $2.16 a bushel. Barley prices have continued to slip in the 1985/86 season, dropping to $1.92 (preliminary) per bushel in July, the lowest monthly price since 1978.

Domestic and export use left a carryout of 248 million bushels on May 31, up 31 percent from last year, despite the record disappearance. About 45 percent of the

carryout was in the FOR (97 million bushels) and CCC (15 million bushels). The 1985 barley crop is forecast at a record 600 million bushels, up 3 million from last year's record. Average yield is expected to be down 2 bushels from last year, but this may be more than offset by a 5-percent increase in area harvested. Excellent growing conditions in North Dakota and Minnesota contrast with poor conditions in Montana and the Pacific Northwest.

Total use in 1985/86 is expected to decline from last year's record, with domestic use holding steady, but exports declining by about 17 million bushels to 60 million. Although corn supplies are plentiful, low barley prices have kept barley a competitive feed ingredient, and will continue to do so through the 1985/86 marketing year.

Projected use of 530 million bushels will leave a carryover of 328 million on May 31, 1986, another substantial increase (about 32 percent). The average farm price for the year is expected to stay in a depressed range of $2 to $2.20 per bushel.

Oats

Use of oats during 1984/85 amounted to only 503 million bushels, down 43 million from last year. Exports declined for the fourth straight year to an insignificant 1.3 million bushels. For the third year in a row, the United States was a net importer of oats, with imports of 30 million bushels, level with a year earlier, and accounting for about 4 percent of total supply.

The weighted average price received by farmers for 1984/85 was $1.71 per bushel, up 4 cents from $1.67 in 1983/84. Oats remain the only feed grain to experience a price increase, putting its average relative to the corn price higher than usual. Relatively high domestic oat prices and the elevated exchange rate of the U.S. dollar explain the strong oat imports.

Carryover stocks on June 1 were 180 million bushels, down about 2 million from a year earlier. These stocks represent about 36 percent of use, in line with the average in recent years.

This year's oat harvest is forecast at 519 million bushels, up 10 percent from last year's extremely small crop. The production increase is expected to result from an 8-percent increase in harvested area (8.8 million acres) and a yield of 59.3 bushels per acre.

The oat supply for the 1985/86 marketing year is expected to rebound from last year's record low to 719 million bushels. Imports will probably not be as large, although the forecast 20 million bushels will still make the United States a net importer. Recent declines in the value of the U.S. dollar, coupled with a weaker domestic price, should reduce the attractiveness of the United States as a market for foreign oats. The season average price in 1985/86 is expected to fall in a range of $1.40 to $1.60, compared with $1.71 last year.

Hay

May 1 hay stocks were about 27 million short tons, reflecting a rebuilding of stocks from last year's tight market. A record 151 million tons were harvested last fall, 10 million above 1983. This harvest offset the small carryin of 20 million tons and brought the marketing year supply to 171 million.

Disappearance in the 1984/85 marketing year was 144 million tons, down 5 million from the previous year. A decline of about 4 percent in roughage consuming animal units (RCAU's) left disappearance per RCAU marginally above a year earlier.

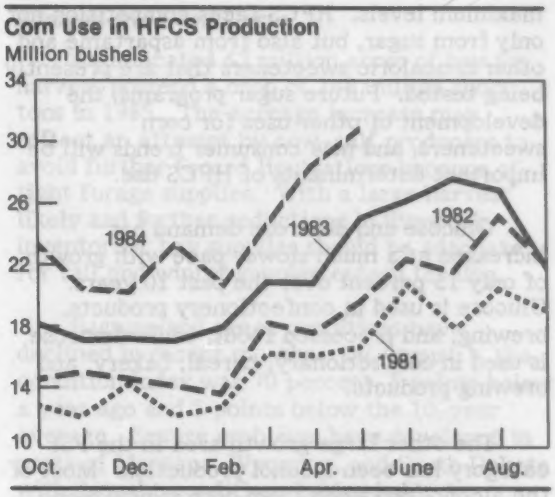
The 1984/85 season average farm price was $73.80 per ton, nearly 3 percent below 1983/84's $75.80. In May-July, the farm price of hay averaged $5.35 per ton below a year earlier. The July (preliminary) price was 68.80 per ton, the first time farm prices fell below $70 since March 1983.

Indicated harvested area of hay for all purposes in 1985 is 62 million acres. Thus, the hay crop could again approach 150 million tons. Disappearance could again decline, as there are fewer projected RCAU's for 1985/86. With strong production and carryin, and weaker demand, stocks could climb to over 30 million tons, and the average price could easily decline $5-$10 per ton for the season.

FOOD AND INDUSTRIAL DEMAND

Food, seed and industrial (FSI) use of corn continues to increase, with total disappearance for 1984/85 projected to be 92 million bushels above the previous year. Annual FSI demand will exceed the 1-billion-bushel mark for the first time. About 20 percent of domestic corn disappearance and 15 percent of total disappearance go into FSI products. Just 12 years ago, FSI consumption was less than 10 percent of domestic disappearance and only 7.5 percent of the total. The development of high fructose corn syrup (HFCS) and ethanol fuel markets has led to higher use of corn for FSI purposes. The trend is expected to continue in 1985/86 with a projected 55-million-bushel increase.

Demand for corn sweeteners has remained relatively strong because their prices are low compared with sugar. The fastest growing corn sweetener is HFCS, which has increased nearly 600 percent in the past 10 years. Soft drink companies' gradual substitution of HFCS for sugar has been the main reason for the increase. The decision by the Coca-Cola Company and PepsiCo, Inc., in November 1984 to allow 100-percent use of HFCS in their soft drinks has pushed HFCS shipments to levels well above those of 1983. It also means that soft drinks now account for over two-thirds of all the HFCS used in this country. Cereal and bakery products rank as the next highest users.



The short-term future of HFCS will depend somewhat on the ability of production plants to operate near full capacity. However, even if manufacturers can operate at full capacity, their capacities will be stretched during the summer when the HFCS demand for soft drinks is at its highest level. HFCS can be manufactured prior to the summer months, but storage problems limit stockpiling.

If the present trend continues, U.S. per capita consumption of corn sweeteners will surpass use in the 1984 crop year. However, it appears that the long-term demand for HFCS will eventually level off as its use in soft drinks and other products approaches

Corn: Food, seed, and industrial use 1/

Year beginning October 1	Wet-milled products				Dry-milled products		Seed	Total
	HFCS	Glucose and dextrose	Starch	Alcohol	Dry-milled alcohol	Dry-milled and alkaline cooked products		
	Million bushels							
1979	140	175	130	30	20	160	20	675
1980	165	185	125	40	35	165	20	735
1981	190	185	135	85	35	163	19	812
1982	215	185	135	130	50	168	15	898
1983	255	190	145	150	50	164	19	973
1984 2/	310	190	145	150	90	161	19	1,065
1985 3/	320	190	150	170	110	160	20	1,120

1/ Data in this table are estimates based on production and sales figures obtained from various Government and private industry publications as well as on unpublished information provided by numerous industry sources. 2/ Preliminary. 3/ Projected.

maximum levels. HFCS faces competition not only from sugar, but also from aspartame and other noncaloric sweeteners that are presently being tested. Future sugar programs, the development of other uses for corn sweeteners, and new consumer trends will be important determinants of HFCS use.

Glucose and dextrose demand has increased at a much slower pace with growth of only 15 percent over the past 10 years. Glucose is used in confectionery products, brewing, and processed foods, while dextrose is used in confectionary, cereal, bakery, and brewing products.

The other large growth area in the FSI category has been alcohol production. Most of the alcohol produced from corn is now being used for fuel (ethanol). Beverage and nonfuel industrial alcohol use has been about 40 million bushels a year and now has a more minor role in relation to ethanol. Ethanol demand has increased in a very dramatic fashion in the past 5 years. In the 1979/80 crop year, ethanol production used only about 10 million bushels of corn, which is dwarfed by the current year's projected use of 200 million bushels. By 1990, corn use for ethanol could exceed 400 million bushels. The factors affecting current conditions and future demand for ethanol are discussed in a special article in this issue.

As ethanol alcohol use has grown, changes have occurred within the industry. The percentage produced by wet-millers has been declining in relation to the dry-millers. (The wet-millers' production process separates the corn kernel into several components, making byproducts such as corn oil and gluten feed and meal, before using the starch portion to produce ethanol. Dry-millers crush or grind the entire kernel to produce ethanol. Distillers' dried grains is a feed byproduct obtained in the process.) In recent years, wet-millers produced 65-75 percent of ethanol. However, in the 1984/85 crop year, the share had dropped to about 60 percent. Several new dry-milled alcohol plants have come on line in the past few years and more are expected this year. In contrast, only one wet-milling plant has increased its alcohol production capacity in the past few years.

Corn use in alcohol production

Marketing year	Wet-milled		Dry-milled		
	Fuel	Beverage 1/	Fuel	Beverage	Total
	Million bushels				
1979	10	20	0	20	50
1980	20	20	15	20	75
1981	55	30	25	10	120
1982	100	30	40	10	180
1983	120	30	40	10	200
1984 2/	120	30	80	10	240
1985 3/	140	30	100	10	280

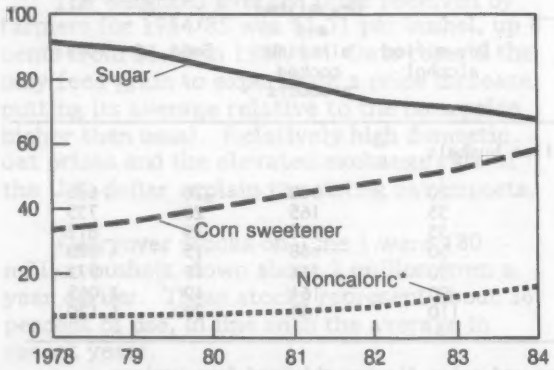
1/ Also includes nonfuel industrial alcohol.
2/ Preliminary. 3/ Projected.

FEED DEMAND

The U.S. inventory of all hogs and pigs on June 1 was the lowest for that date since 1975. Poor returns and financial stress have prompted producers to sell gilts rather than retain them for expansion. Thus, the breeding herd inventory was the lowest for June 1 since the series began in 1964. Further, farrowings this spring were off 2 percent from a year earlier, and producer intentions for June-November are to have 4 percent fewer sows farrow than a year earlier. These factors all imply a weaker feed demand by hog producers through next spring. Although the average live weight of marketed barrows and gilts has been 0 to 4 pounds above a year earlier, the extra feed required to finish the animals at heavier weights should be offset by the drop in hog numbers.

U.S. Sweetener Consumption

Pounds per capita



*Sugar sweetness equivalent. Assumes saccharin is 300 times as sweet as sugar and aspartame is 200 times as sweet.

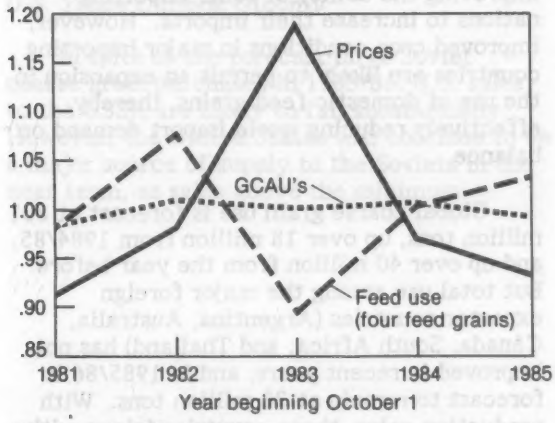
Cattle inventories on July 1 were down as well, the lowest for this date since the series began in 1973. Further, beef cow numbers were down 7 percent from a year earlier. The smaller cow herd and reduced retention of replacement heifers ensure continued herd declines at least through 1986.

Since February, cattle feeders have delayed marketings of fed cattle, leading to record dressed weights and a backlog of overfinished cattle. Thus, the fed beef supply and feed demand have been strong, while cattle prices have deteriorated. Analysts have speculated that the heavyweight fed cattle supplies could be worked off by September or October. If so, feed demand from the fed cattle sector could begin to slack off by the fall quarter. However, if steer prices rise while grain prices fall, feedlot placements could actually pick up this fall.

Poultry production continues to enjoy strong increases. For 1984, production was 16.1 billion pounds, up 4 percent from a year earlier. Another 5-percent growth is expected for 1985 and 1986, which will keep demand for poultry feeds strong through calendar 1986, and likely beyond.

Animal Units, Feed Use, and Prices

Percent of 1981/82-1985/86 average



1984 forecast. 1985 projected.

Forages and Feed Costs

An indicated 62 million acres of hay for harvest portend a crop of 148 million short tons in 1985. The acreage increase may reflect an attempt by cow-calf producers to avoid further forced liquidations because of tight forage supplies. With a large harvest likely and further reductions in livestock inventories, hay supplies should be adequate for fall and winter supplementary feeding.

Pasture and range conditions have declined in recent months. On August 1, the condition index was 70 percent, 5 points below a year ago and 5 points below the 10-year average. Severe problems have developed in parts of Montana, Wyoming, and South Dakota with drought conditions taking hold. In addition, grasshopper infestations and fires have plagued many western States this summer.

Prices paid index for feed

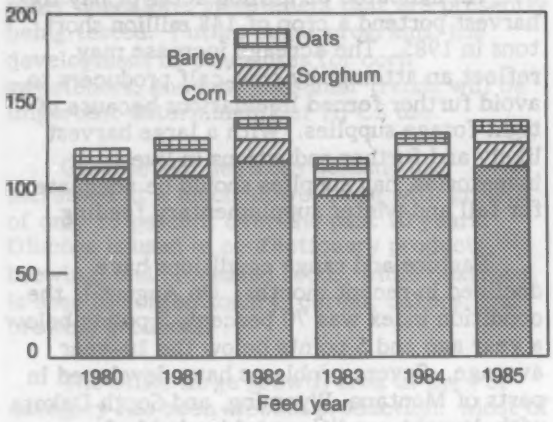
Quarters	1983/84	1984/85	1985/86
		1910-14=100	
Oct.-Dec.	566	491	450
Jan.-Mar.	568	486	435
Apr.-June	567	472	430
July-Sept.	529	455	420

Cheaper grain and high-protein feeds remain an optimistic aspect for the livestock sector. With large stocks and favorable weather, supplies are expected to continue to grow, keeping prices low. This summer's feed costs are expected to drop about 14 percent from a year earlier. Price declines should continue through the 1985/86 feed year, with the feed cost index projected to fall 8 to 12 percent below 1984/85.

Late July and early August showed the hog/corn price ratio at around 17.5, while the steer/corn ratio was slightly above the 20.5 mark. With lower animal inventories and extra large feed grain supplies anticipated, these livestock-feed ratios should encourage continued heavy feeding rates, tempered by potential price increases for feeder cattle and pigs.

Feed and Residual Disappearance

Million metric tons



1984 forecast. 1985 projected.

WORLD COARSE GRAIN SITUATION

In 1984/85, global coarse grain production soared to a record 807 million metric tons, up about 121 million from the unusually low outturn of the previous year. In 1985/86, riding the crest of improved crops in some countries and regions, and continued large harvests in others, global production is forecast to soar once again. Import demand will diminish, major importer production will likely improve, and competition among exporting nations will continue to be keen in 1895/86. As a result, coarse grain prices (corn and sorghum in particular) are forecast to remain low in the near term.

Although global ending stocks were reduced in 1983, the world continues to produce much more coarse grain than it consumes and, therefore, stocks are rising. In 1985/86 alone, the gap is forecast to be about 36 million tons. As in the past, the United States is likely to carry most of the increase. U.S. corn stocks may skyrocket by more than 90 percent.

Global Production Continues High; Use Fails To Keep Pace

In 1984/85, world coarse grain production surpassed 800 million tons for the first time. Significant gains over the previous year were noted throughout Western and Eastern Europe, and China's production set a record.

Production among the major importers combined (Eastern Europe, EC–10, other Western Europe, the USSR, Mexico, Japan, Korea, and Taiwan) in 1985/86 appears to slightly exceed that of 1984/85, at 282 million tons. Production among the EC–10 members in 1984/85 was bolstered by both the impact of improved technology and virtually ideal weather conditions. In 1985/86, conditions remain above average, and another excellent crop is forecast. The same is true for China, where production is likely to almost equal last year's level.

An improved Soviet crop is the difference in 1985/86. The crop is now forecast at 95 million tons, a pickup of 9 million from 1984/85. The last time the USSR coarse grain crop was that high was 1978/79, when total grain production reached a record 237 million tons. Improvement of this caliber has permitted Soviet feed use of coarse grains to continue to exceed 80 million tons. Additionally, the larger crops will likely reduce the need for the Soviets to purchase grain, especially from the United States. Major foreign exporter production in 1985/86, at over 64 million tons, continues strong. However, the midsummer months were not kind to much of the Canadian barley crop (and wheat as well) with yields declining.

The improved world outturn is likely to continue to depress global prices, thereby improving the ability of some importing nations to increase their imports. However, improved crop conditions in major importing countries are likely to permit an expansion in the use of domestic feed grains, thereby effectively reducing world import demand on balance.

Global coarse grain use is forecast at 801 million tons, up over 18 million from 1984/85, and up over 40 million from the year before. But total use among the major foreign exporter countries (Argentina, Australia, Canada, South Africa, and Thailand) has not improved in recent years, and in 1985/86 is forecast to remain at 38 million tons. With production gains, these countries (along with the United States) must decide whether to store the excess or export it. The favored choice is clearly the latter; the reality though, is likely to be the former.

World Import Demand Falls

World import demand for coarse grains peaked in the late 1970's. Since 1980/81, demand has fallen dramatically, to under 90 million tons in 1982/83, although it reached over 102 million tons (excluding intra-EC trade) in 1984/85. However, that level was dominated by record-setting purchases of 28 million tons by the Soviet Union. China's imports this year have remained extremely low, while EC imports have fallen by about one-third. Imports of other nations remained stagnant.

In 1985/86, global imports are forecast to fall under 95 million tons--the result of substantially reduced Soviet imports (estimated at 18 million tons, but still a reduction of 10 million tons), diminished import demand in Western Europe, and a sluggish Japanese market.

Many of the coarse grain production shortfalls in the major foreign exporting countries during the 1980's were due to short-term problems, such as bad weather in South Africa and Australia. In years of production shortfalls, much of the increased trade activity fell to the United States. The improved production prospects worldwide in 1985/86 indicate potential losses in sales that will likewise fall to the United States.

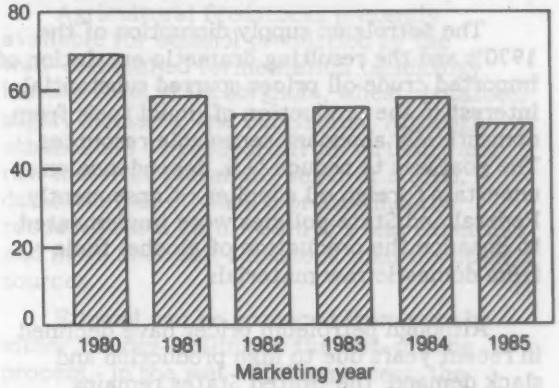
U.S. Trade Outlook Gloomy

In spite of the forecast large Soviet coarse grain purchases in 1985/86, U.S. sales to the USSR are likely to fall substantially. However, the United States will continue to be a major source of supply to the Soviets in the near term, as sales above the minimum amounts specified in the second U.S.-Soviet Long-Term Grain Agreement are envisioned. In past years, the Soviets have always purchased more grain than required in such agreements from all countries. The extent of the "additional" purchases, however, may diminish somewhat in the near term, as the Soviets continue to expand their corn-for-grain outturn.

A slowdown in sales of U.S. corn and sorghum to some major importing countries, as well as less-than-anticipated sales to other countries, has diminished U.S. trade prospects. U.S. corn sales to the world may account for about 69 percent of the total, compared with 75 percent in the early 1980's. The U.S. share of the sorghum market, however, may actually improve from under 50 percent in the early 1980's to 58 percent in 1985/86--largely the result of expected Japanese purchases.

U.S. Exports*

Million metric tons



*Corn, sorghum, barley, and oats. 1984 forecast. 1985 projected.

STATUS OF THE U.S. ETHANOL MARKET

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Abstract: Alcohol fuel production capacity has expanded rapidly due to Federal and State incentives to encourage production from domestically abundant renewable resources. Corn, which can be converted into ethanol, has emerged as the premier source for the foreseeable future.

With the EPA phasedown of the use of lead in gasoline, demand has surged for ethanol as an octane-enhancer. Ethanol is competitive with other octane-boosters only because of Federal and State production incentives. Limited production capacity and the long lead time required to install new capacity, will make it difficult for the domestic industry to meet accelerated demand for ethanol.

Because imports, especially from Brazil, are an increasing source of U.S. supplies, domestic producers have filed an anti-dumping case, alleging that Brazilian production is heavily subsidized.

Keywords: Ethanol, feedstock, supply, demand, octane-booster, imports, and gasohol.

Introduction

The petroleum supply disruption of the 1970's and the resulting dramatic escalation of imported crude oil prices spurred substantial interest in the production of liquid fuels from domestically abundant renewable resources. The goal was to reduce U.S. dependence on uncertain foreign oil supplies. Consequently, Federal and State policies were implemented to enhance the production of alcohol fuels from domestic raw materials.

Although petroleum prices have declined in recent years due to high production and slack demand, the United States remains vulnerable to international oil supply interruptions and, consequently, major price increases. Moreover, since energy consumption in developing countries is increasing faster than in industrialized countries, there is a worldwide need to expand alternative sources of energy production such as alcohol fuels from grain. 1/

Recently, the Environmental Protection Agency (EPA) ordered a phased reduction of the use of lead in gasoline, creating additional demand for alcohol fuels, primarily ethanol, as an octane-booster. Since corn is a major ethanol feedstock, expanding production of ethanol implies increased demand for corn.

Government Subsidies

The production of alcohol fuel from biomass has received considerable support at both Federal and State levels. The U.S. Congress and many States have enacted a variety of incentives to encourage the development of the domestic fuel ethanol industry. These incentives take a variety of forms: investment tax credits, loan guarantees, and sales and excise tax exemptions for motor fuel containing alcohol.

Federal Incentives

Gasoline Excise Tax Exemption -- Currently, the Federal excise tax on gasoline is 9 cents per gallon. To encourage development of the domestic fuel ethanol industry, the Federal Government has reduced the tax on fuel ethanol-gasoline blends, known as gasohol. Gasohol blends of one-part alcohol and nine-parts gasoline are eligible for a 6-cents-per-gallon exemption from the Federal excise tax.

1/ Alcohol fuels include both ethanol and methanol. This paper concentrates primarily on fuel ethanol.

The Federal gasoline excise tax exemption has undergone successive increases since its inception. The Energy Tax Act of 1978, (PL–95–618), established a 4–cents–per–gallon exemption. The Highway Revenue Act of 1982, (PL–97–424), increased the exemption to 5 cents. The exemption was increased to its current level on January 1, 1985, under the Tax Reform Act of 1984, (PL–98–369). This exemption is scheduled to expire December 31, 1992. Since the Federal excise tax exemption is 6 cents per gallon on the 90–percent gasoline and 10–percent fuel ethanol blend, this translates into a 60–cents–per–gallon exemption for ethanol. Furthermore, fuels containing at least 85 percent ethanol, methanol, or other alcohol will be exempted from the entire 9–cents–per–gallon Federal excise tax if the alcohol is produced from substances other than petroleum or natural gas. This exemption also will continue through 1992.

Investment Tax Credits — Facilities for alcohol production may qualify for two investment tax credits: 1) a 10–percent energy investment tax credit, which is due to expire December 31, 1985, and applies to equipment that converts biomass into fuel ethanol, and 2) the permanent 10–percent investment tax credit available to any business investing in new machinery or equipment. Thus a total investment credit of 20 percent can be claimed for new equipment producing fuel ethanol from biomass.

Federal Income Tax Credits — Individuals who sell or use blended or unblended (neat) alcohol in their trade or business may claim income tax credits for alcohol derived from substances other than petroleum, natural gas, or coal. Amounts claimed must be reduced by the amount of any Federal gasoline excise tax exemption claimed for the fuel. Total income tax credits per gallon equal 60 cents for 190–proof or above and 45 cents for alcohol of 150–to–189 proof. 2/

Loan Guarantees — The Energy Security Act of 1980 (PL–96–223) established a short–term program of loan guarantees to assist in the financing and construction of fuel ethanol plants. The Federal loan guarantees are administered by the Office of Alcohol Fuels of the Department of Energy (DOE) and by the Farmers Home Administration (FmHA) of the Department of Agriculture (USDA).

State Incentives

Many States have enacted legislation to encourage ethanol production and the consumption of gasohol. As of April 1985, 29 States offered incentives, generally in the form of exemptions from the State excise tax or sales tax on motor fuels. State gasoline tax exemptions vary, ranging from 1 cent to 16 cents a gallon, with most States offering 3 to 5 cents (Figure 1). Some States offer exemptions only for fuel ethanol produced in that State, others for all domestically produced fuel ethanol, and still others for all fuel ethanol, imported and domestic.

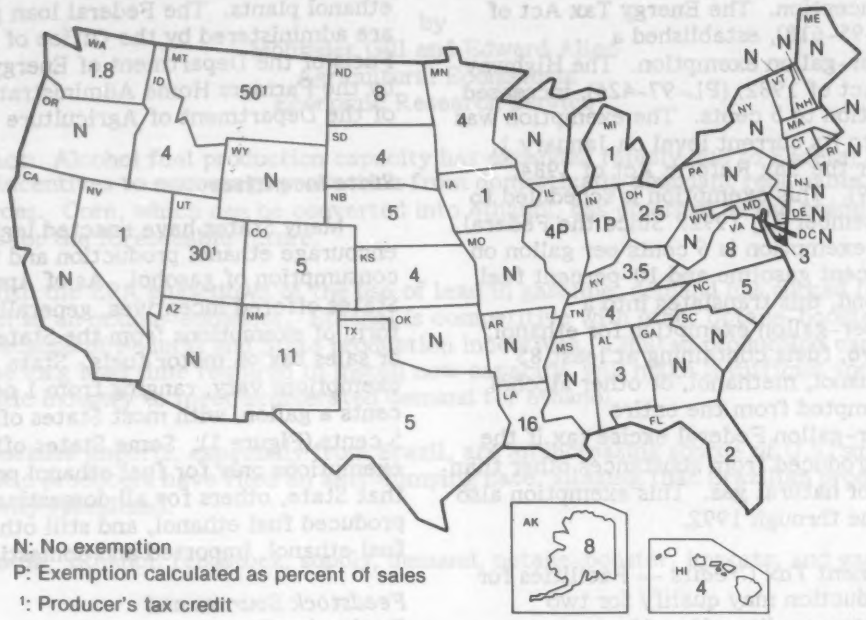
Feedstock Sources and Production Processes

Agricultural feedstocks presently available for ethanol production by the well–established fermentation technology include corn, grain sorghum, wheat, potatoes, sugar, molasses, and cull fruits. Although ethanol can be produced from virtually any raw material containing sugar or starch, domestic fuel ethanol is predominantly produced from corn. Corn is a less expensive and more abundant feedstock than the other sources.

Ethanol can be produced from corn by either the dry–milling or the wet–milling process. In the wet–milling process, the components of the corn kernel are separated in a water solution before being processed into a variety of products. The starchy portion of the kernel has traditionally been converted by the wet–milling industry into sweeteners (e.g. high fructose corn syrup) and processed starch products. With the advent of a fuel ethanol market, the industry was able to switch some of the starch to produce ethanol with small additional capital investment and relatively minor changes in its operation. Instead of processing the starch into sweeteners, wet–millers convert the sugars into ethanol through fermentation and finally the crude ethanol is distilled into anhydrous (200–proof) fuel ethanol.

2/ Proof describes the strength of the ethanol (ethyl alcohol) solution and is a number double that of the percent alcohol in the solution. For example 100 proof = 50 percent alcohol.

State Tax Exemptions for Ethanol-Gasoline Blends



N: No exemption
P: Exemption calculated as percent of sales
¹: Producer's tax credit

Cents per gallon of gasohol (blend containing 10 percent ethanol and 90 percent unleaded gasoline).

When ethanol is produced by dry-milling, the kernel is ground up in its entirety. Ethanol production by dry-milling takes place in three steps: the formation of a solution of fermentable sugars, the fermentation of sugars to ethanol, and the distillation of ethanol. A sugar solution is prepared from the ground grains by adding water and cooking it to separate the starch from the other components. Enzymes are then added which convert the starch into sugar.

In 1984, the wet corn-milling industry accounted for about 75 percent of fuel ethanol production. However, because of the relative simplicity of the operation and lower capital investment, most new producers are expected to use the dry-milling process. Regardless of process, each bushel of corn yields about 2.5 gallons of anhydrous ethanol plus a variety of byproducts that can be used as animal feed. DDG (distillers' dried grains), DDGS (distillers' dried grains with solubles) and carbon dioxide (CO_2) are the byproducts of dry-milling whereas corn gluten feed, gluten meal, corn oil, and CO_2 are the major byproducts of the wet-milling process.

Ethanol also can be made synthetically from natural gas or petroleum. However, all Federal and State tax incentives which are critical to fuel ethanol use, are applicable only to ethanol produced from renewable agricultural feedstocks.

About 95 percent of current fuel ethanol production capacity is designed to produce ethanol from corn. In 1984, domestic ethanol producers used 160 million bushels of corn, compared with 150 million in 1983. An estimated 200 to 240 million bushels of corn will be required in 1985 to produce 500 to 600 million gallons of ethanol. Corn is likely to remain the premier ethanol feedstock in this country.

Economics of Ethanol Production

Several factors affect the profitability of producing ethanol from corn or other feedstocks. These include the cost of feedstock, the value of byproducts, processing costs, the cost of capital, the milling process, the size of the plant, the price of gasoline and, critically, the availability of Government

subsidies. The cost of feedstock is particularly important, as it represents 50–75 percent of the total cost of fuel ethanol, but the range depends upon the cost of the feedstock and the efficiency of the plant. Size of the plant is also important because there are significant economies of scale.

Actual ethanol production data, being proprietary in nature, are not available. Estimated corn-based ethanol production costs, based on a corn price of $3 a bushel and the dry-milling process, range from $2.01 to $1.42 per gallon in 1984 dollars without Government subsidies when the plant size ranges from 10 million gallons to 120 million per year, respectively (table 1). Most operational plants in the United States fall in the capacity range of 20 to 60 million gallons per year. However, the bulk of the production comes from plants with annual capacity of 60 million gallons per year or larger.

The average wholesale price of unleaded gasoline in 1984 was 84 cents per gallon, excluding taxes, and it declined to 81 cents in first-quarter 1985. Obviously, without Federal and State subsidies, ethanol is not competitive with other octane-enhancement alternatives. However, the combined Federal and State exemptions range from 6 to 22 cents per gallon of gasohol, and therefore currently enable ethanol-gasoline blend to effectively compete with unleaded gasoline in States that have a subsidy.

Ethanol Demand

Ethanol demand consists of fuel uses and nonfuel uses. Fuel uses include neat fuel (100-percent ethanol), a fuel extender, and an octane-enhancer. Nonfuel uses are in chemicals, solvents, and beverages. Ethanol for chemical and solvent use is derived mostly from ethylene—a petroleum product--and is called synthetic or industrial ethanol. Ethanol used in beverages and fuel, on the other hand, is produced from sugars and starches, mostly grain, by the fermentation process. Industrial ethanol is more chemically pure than fuel ethanol. Fuel ethanol can be substituted for industrial ethanol but it requires purification which entails extra cost.

U.S. demand for ethanol in 1984 was 815 million gallons and is projected to increase to about 1.2 billion in 1990 (table 2). Ethanol demand by various uses is discussed below:

Chemical Demand — Ethanol is used in the manufacture of chemicals such as vinegar, ethyl acrylate, ethyl acetate, ethylamines, and glycol ethers and other chemicals. The demand in this use was around 90 million gallons in 1984 and is expected to grow to around 95 million by 1990.

Solvent Demand — Outside the fuel market, the use of ethanol as solvent commands the largest market. Solvent applications such as coatings, toiletries,

Table 1.—Cost per gallon of corn-based ethanol production, 1984 1/

Cost	Ethanol plant size (million gallons)						
	10	20	40	60	80	100	120
	Dollars per gallon						
Energy	.30	.30	.30	.30	.30	.30	.30
Other direct	.17	.10	.07	.07	.06	.06	.06
Indirect	.24	.18	.13	.12	.12	.10	.10
Capital recovery	.74	.60	.51	.47	.44	.41	.40
Feedstock 2/	1.15	1.15	1.15	1.15	1.15	1.15	1.15
Byproduct credit 3/	-0.59	-0.59	-0.59	-0.59	-0.59	-0.59	-0.59
Total	2.01	1.74	1.57	1.54	1.46	1.43	1.42

1/ Assumptions: Conversion yields of 2.6 gallons of ethanol and 16.8 pounds of high-protein byproducts per bushel of corn; Federal and State tax exemptions not included; and costs shown are for dry-milling production technology. 2/ Based on corn price of $3.00 a bushel. 3/ Based on distillers' dried grain of $181.00 a ton.

Source: Inputs Outlook and Situation (IOS-5), August 1984.

cosmetics, pharmaceuticals, cleaning products, and disinfectants, together had a market of 116 million gallons in 1984. Demand is expected to grow at an annual rate of nearly 3 percent through 1990.

Beverage Demand --- The beverage market for ethanol is expected to remain stagnant at about 70 million gallons per year.

Fuel Market -- In recent years, attention has largely centered on the fuel uses of ethanol. Ethanol may be used as a neat fuel or in gasoline blends. In the United States, virtually all is used in gasoline blends.

Currently, most fuel ethanol is used in gasohol. Gasohol grew rapidly from its introduction in 1979: consumption rose from about 81 million gallons in 1981 to 430 million gallons in 1983 (table 2). This growth was boosted primarily by increasing Federal and State subsidies and other incentives for production and use of ethanol-gasoline blends. In 1984, the growth rate slowed to 26 percent from the 1981-82 and 1982-83 rates of 184 percent and 87 percent respectively, primarily because of declining gasoline prices, which make ethanol production relatively less profitable.

With the promulgation of EPA's new regulation requiring a reduction in the lead content of gasoline from 1.1 gram to 0.1 gram per gallon in January 1986, the demand for ethanol as an octane-enhancer is expected to pick up significantly.

While refiners have historically used tetra-ethyl lead as the cheapest means of increasing octane, the required phasing down of lead from leaded gasoline and the production of new cars designed to use unleaded gasoline, have required refiners to find alternative octane-boosters. These alternatives include more extensive refining of gasoline, which requires added capital expenditures and additional energy, and lowers the yield per barrel of crude oil; and using alternative octane-boosters such as ethanol, methanol, teritiary butyl alcohol (TBA), methyl tertiary butyl ether (MTBE), and toluene.

The option selected by each refiner will depend upon a variety of factors including plant age, location and configuration, capital cost and availability, crude oil cost and availability, and the cost of alternative octane-boosters.

Table 2.--U.S. ethanol demand, 1981-1990

Year	Chemical	Solvent	Beverage	Fuel	Total
			Million gallons		
1981	96	110	70	81	357
1982	88	102	70	230	490
1983	89	111	70	430	700
1984 1/	89	116	70	540	815
1985 1/	89	121	70	600	880
1990 1/	96	138	70	850	1,154

1/ Estimated.

Source: Evangelow, James, Chemical Systems Inc., Terrytown, N.Y., Global Outlook for Ethanol and Implications for the United States. Presented at the 1984 Washington Conference on Alcohol, Arlington, Virginia. November 15-16, 1984.

Because of its high octane rating of 110-112, ethanol can be used in place of tetra-ethyl lead to increase the octane rating of unleaded gasoline. At current ethanol prices and with the current Federal subsidy, it would cost about 1 cent per gallon to increase the octane rating of unleaded regular gasoline by 1 octane number. This compares with 2 cents for TBA, 1.2 cents for toluene, and 1.1 cents for MTBE. Methanol is the cheapest octane-enhancer. Net cost is less than one cent a gallon per octane number. However, current law prohibits producing blends containing more than 5-percent methanol. Reforming also is a relatively low-cost alternative, adding 0.4 to 0.8 cents per octane number per gallon. This shows that U.S.-produced ethanol, with the subsidies, is currently price competitive with some octane-enhancement alternatives.

Ethanol's estimated octane market share in 1984 was 24 percent and it is projected to reach 25 percent in 1985 and remain at that level through 1988, considering relative prices and other factors affecting competition among available octane-enhancers 3/. Fuel ethanol demand, as a consequence, could increase

3/ Oppenheimer & Co. Inc. "Lead Phasedown To Spur Renewed Growth in Ethanol" No. 85-109.

significantly from 540 million gallons in 1984. It could play a limited role in helping refiners bridge the octane gap.

Domestic Ethanol Production Capacity

Total anhydrous ethanol production capacity in the United States grew rapidly from 380 million gallons in 1981 to about 740 million in 1984, and it is projected to reach 790 million in 1985. Annual capacity may reach 1 billion gallons by the end of 1988 if current Federal and State incentives remain in effect. However, the energy investment tax credit is scheduled to expire at the end of this year, and there is a proposal to terminate the tax subsidy for plants completed after 1985.

U.S. ethanol producers are operating at less than full capacity because gasoline prices have fallen and the competition from Brazilian imports has increased. Also, facility loan guarantees and investment tax credits may have overcapitalized in the early 1980's. However, because of EPA's new lead standard and the likely additional demand for ethanol as an octane-booster, it is possible that the ethanol industry might be hard pressed to keep up with the projected increase in demand.

U.S. Imports of Ethanol

Brazil supplies the bulk of our imported ethanol. Fuel and industrial ethanol exports to the United States have increased rapidly from the low levels of the 1970's. While traditional suppliers, mainly European, have remained small, Brazilian exports have begun to dominate the U.S. ethanol import market.

In 1984, imports from Brazil that were declared for fuel purposes accounted for 15 percent of the fuel ethanol consumed in the United States. However, Brazil exported more industrial alcohol to the United States than fuel alcohol. If the industrial imports were actually used as fuel, Brazil could have supplied over 35 percent of the fuel ethanol used in the United States in 1984. This market penetration has occurred despite increasing high tariff barriers for fuel ethanol (table 3). U.S. ethanol subsidies were created to help U.S. producers. Foreign ethanol is expected to compete in the fuel market without subsidies. Therefore, a 60-cent-per-gallon tariff was imposed to offset the Federal subsidy.

Trade Loopholes

The large tariff provides ample incentive to ethanol exporters to try to find ways of avoiding the tariff and manage to compete in the U.S. market on the same favorable conditions as U.S. producers.

While imports of fuel and industrial ethanol can be used interchangeably, tariffs and duties are much lower for industrial ethanol than for fuel ethanol. Fuel ethanol imports are subject to a 3-percent ad valorem duty and a 60-cents-per-gallon tariff. Only the 3-percent ad valorem duty applies to

Table 3.--Brazilian hectares of harvested sugar cane, production of ethanol, total ethanol exports to the United States, cruzeiro exchange rate, and U.S. fuel ethanol import tariff, 1981-84

Year	Sugar cane harvested	Ethanol produced	U.S. ethanol imports from Brazil		Brazilian fuel ethanol imports as a share of U.S. fuel ethanol market	Exchange rate cruzeiros/ U.S. dollars	U.S. tariff on fuel ethanol 2/
			Industrial	Fuel 1/			
	Million hectares	Billion gallons	Million - - - gallons - - -		Percent	Cruzeiros/$	Dollars/gal.
1981	2.83	.89	8.5	4.4	5.4	93.1	0.10
1982	3.09	1.02	4.3	13.3	6.3	179.5	0.20
1983	3.45	1.32	18.5	54.5	12.7	577.0	0.50
1984	3.85	3/ 1.77	129.2	82.5	14.7	1,848.0	4/ 0.50

1/ U.S. Department of Commerce estimates. (Note: These estimates differ significantly from U.S. customs records for all ethanol imports.) 2/ Excludes Caribbean Basin countries. 3/ June-December 1983/84 marketing year. 4/ Raised to $0.60 January 1, 1985.

ethanol imported for industrial use. If the industrial ethanol is used as fuel, reclassification and payment of the tariff can be postponed for as long as 3 years. This is one of several ways to avoid paying the tariff.

A second way to circumvent the tariff is use of the Caribbean Basin Initiative (CBI). The CBI is a major economic program to help the region's economies and gives them preferential access to U.S. markets by exempting CBI producers from U.S. tariffs. Caribbean producers would like to convert imported hydrous ethanol to the anhydrous product in order to avoid paying the U.S. ethanol tariff. Certain requirements must be met to qualify, and U.S. Customs is currently making an evaluation. Much of Brazil's production is hydrous, suitable for cars specially designed to run on pure alcohol, but not suitable for mixing with gasoline. At present, there is limited industrial capacity in the Caribbean to convert hydrous alcohol to anhydrous.

Exporters have been able to blend ethanol with gasoline, toluene, and other hydrocarbons and avoid the tariff. Customs no longer allows such blends to avoid the tariff. However, significant quantities may enter under existing contracts. Several bills have been introduced in Congress to close these loopholes.

In addition, in February 1985, U.S. fuel alcohol producers filed an anti-dumping case with the International Trade Commission (ITC) and International Trade Administration, claiming that Brazilian ethanol is sold in the United States at prices too low to provide a profit without subsidization. If the ITC finds that Brazil does subsidize or dump excess production at below cost, countervailing duties can be imposed. Faced with the prospect of a countervailing duty, Brazil may agree to a quota system or market allocation that would ensure a more stable market.

Factors Encouraging Brazilian Exports

The ethanol program in Brazil is significantly larger than the U.S. program, and has received extensive government support. A relatively small portion of Brazilian production, if diverted to exports, can depress ethanol prices in the United States.

After the 1974 disruption of oil supplies, Brazil was the first country to turn to biomass as a major substitute for petroleum. Few alternatives were available. Domestic reserves of petroleum were small and the transportation system was dependent on an expansive system of roads. Brazil's foreign exchange was scarce and credit for petroleum imports was limited. Furthermore, since Brazil is the world's largest sugarcane producer, a large supply of renewable feedstock was available and the fermentation technology was well-known.

In 1975, Brazil launched a national program (PROALCOOL) designed to produce fuel alcohol from sugarcane. Initially, anhydrous ethanol was blended with gasoline for use without modifying existing engines. Currently, neat ethanol is being promoted for use in specially manufactured cars and light trucks. Straight alcohol is sold at 65 percent of the gasoline price, and over 95 percent of new cars now run on neat ethanol. Government loans were made available for alcohol processing facilities and sugarcane production, covering up to 80 percent of the total cost of establishing new distilleries or modernizing older facilities, and up to 100 percent of sugarcane producers' investment, production, and marketing costs. Due to budgetary austerity imposed over the last 3 years, the interest rate charged on government loans has become less favorable. Currently the government charges full adjustment for inflation (about 200 percent per year) plus 3 percent. This is still below market rates.

Nonbudgetary support for the alcohol program includes price supports for sugarcane, as well as a variety of consumer incentives to use alcohol-fueled vehicles. These incentives include lower license fees, longer-term financing of alcohol-fueled vehicles, and a ban on Sunday gasoline sales.

Since the initiation of PROALCOOL programs, Brazil has increased alcohol production from 147 million gallons during the 1975/76 crop year (June/May) to 1,770 million gallons in 1984/85. The target for 1985/86 is 2,933 million gallons. Similarly, sugarcane hectarage increased from 2.61 million in 1979/80 to 3.85 million in 1983/84. In 1984/85, only half of the sugarcane harvest was used for sugar production.

The Petroleum Institute of Brazil has acquired all fuel ethanol and made decisions about exports. However, the controlling agencies are being reorganized and some additional decision making may be delegated to private industry. There is some flexibility to trade off between sugar and alcohol exports. Distilleries annexed to sugar refineries can process alcohol from molasses, a byproduct of sugar, or use the entire product from the cane crushing. However, this production flexibility is not available to many distilleries that are independent of sugar refineries.

Another government agency, the Sugar and Alcohol Institute, has a monopoly on sugar exports. A large portion of Brazil's sugar exports are under long-term contracts and remain profitable, but with world sugar prices as low as 3 cents per pound, additional sugar exports need to be subsidized, and are not profitable. As long as the losses from ethanol exports are less than those from sugar exports, the incentive remains to channel as much cane as possible into ethanol and export it instead of sugar. According to Brazilian press estimates, Internor, a subsidiary of the Petroleum Institute of Brazil, lost at least U.S. $30 million exporting ethanol to the United States in 1984.

The Outlook for U.S./Brazil Ethanol Trade

The most important incentives for Brazil's current agressive exports of ethanol are:

— Potential to avoid the U.S. tariff and therefore benefit from U.S. ethanol subsidies

— depressed domestic demand for ethanol due to recession

— increased supplies of petroleum in Brazil

— sugarcane production increases greater than expected

— very low prices for exported sugar

— low growth in Brazilian demand for sugar

— high value of the U.S. dollar, making exports to the U.S. market very attractive

— need to generate hard currency to service Brazil's international debt.

A change in any one of these factors could change Brazil's decision to export ethanol.

Implications for the U.S. Market

The future of U.S. ethanol imports from Brazil will be largely shaped by efforts to close loopholes in the U.S. import tariff, which may make direct shipments of Brazilian ethanol unprofitable. Bilateral trade relations with Brazil are complicated by the need for a trade surplus in Brazil's favor if Brazil is to service its international debt. Any action that limits its trade surplus complicates Brazil's ongoing debt negotiations with the International Monetary Fund.

If Brazil can place ethanol on the U.S. market without paying the tariff, it could significantly increase competitive pressure in the U.S. ethanol industry and may drive some domestic producers out of business. This would reduce the amount of corn needed to produce ethanol. Even if Brazilian ethanol is not allowed to benefit from U.S. subsidies, it may continue to have a modest share of the ethanol market.

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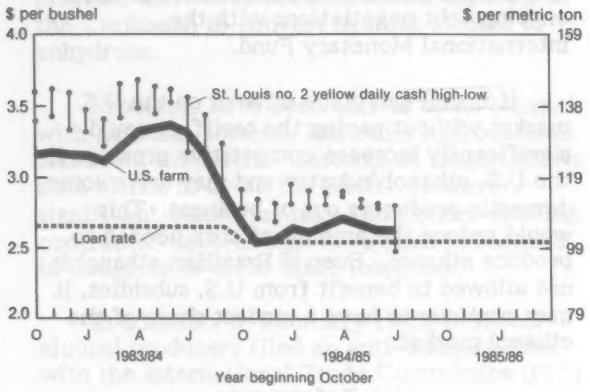
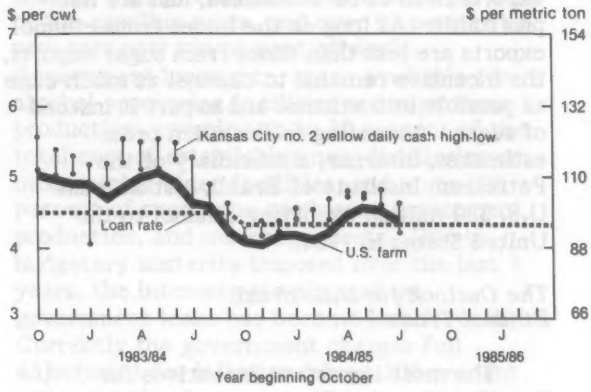
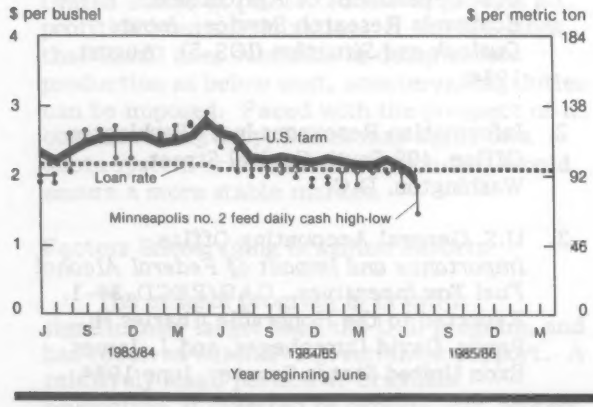
Corn Prices



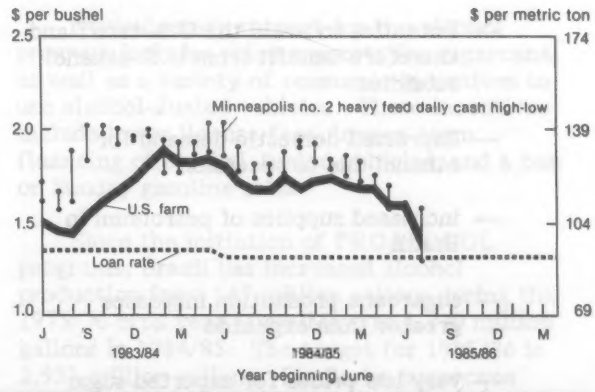
Sorghum Prices

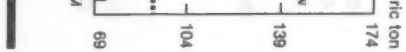


Barley Prices



Oat Prices





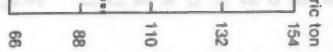


Table 1.--Feed grains: Marketing year supply, disappearance, area, and prices, 1980-85 1/

Year 2/	Supply: Beginning stocks	Supply: Production	Supply: Imports	Supply: Total	Disappearance: Domestic use: Food	Alc. beverages	Seed	Feed and residual	Total	Exports	Total disappearance	Ending stocks: Govt. owned	Privately owned 3/	Total
	Million metric tons													
1980/81	52.4	197.9	0.3	250.6	17.1	5.4	1.3	122.9	146.7	69.3	216.0	7.1	27.5	34.6
1981/82	34.6	246.2	0.3	281.1	18.9	5.5	1.4	128.5	154.3	58.6	212.9	8.9	59.3	68.2
1982/83	68.2	250.2	0.3	318.7	20.5	6.0	1.4	139.5	167.4	54.0	221.4	34.2	63.1	97.3
1983/84	97.3	136.4	0.7	234.4	22.9	5.4	1.5	117.4	147.2	55.7	202.9	11.3	20.2	31.5
1984/85 4/	31.5	236.3	0.7	268.5	--	32.4	--	131.4	163.8	57.6	221.4			47.1
1985/86*	47.1	257.2 (± 22)	0.5	304.8 (± 22)	--	33.8 (± 2)	--	136.6 (± 9)	170.4 (± 9)	51.5 (± 6)	221.9 (± 14)			82.9 (± 12)

Year 2/	Area: National program	Area: Set-aside and diverted	Area: Planted	Area: Harvested for grain	Yield per harvested hectare	Index: Average price received by farmers 5/	Government-support program: Total payments to participants
	Million hectares				Metric tons	1977=100	Million dollars
1980/81	42.7	---	49.1	41.1	4.82	154	6/ 412
1981/82	42.5	---	49.9	43.1	5.71	123	7/ 423
1982/83	---	1.3	49.1	42.9	5.83	136	7/ 419
1983/84	---	15.9	41.6	32.5	4.20	154	8/ 1,103
1984/85 4/	---	2.1	49.3	43.1	5.49		9/ 1,900
1985/86			51.5	45.1	5.70		

1/ Aggregated data on corn, sorghum, barley, and oats. 2/ The marketing year for corn and sorghum begins October 1; for oats and barley, June 1. 3/ Includes total Government loans (original and reseal). 4/ Preliminary. 5/ Excludes support payments. 6/ Disaster payments. 7/ Deficiency and disaster payments. 8/ Deficiency and diversion payments. 9/ Deficiency payments. *The probability is 2 out of 3 that the outcome will be within this range.

Table 2.--Corn: Marketing year supply and disappearance, area, and prices, 1980-85

Year beginning October 1	Supply: Beginning stocks	Supply: Production	Supply: Imports	Supply: Total	Disappearance: Domestic use: Food 1/	Alc. beverages 2/	Seed	Feed and residual	Total	Exports	Total disappearance	Ending stocks Sept. 30: Govt. owned	Privately owned 3/	Total
	Million bushels													
1980/81	1,617.1	6,639.4	1.2	8,257.7	641.8	73.3	20.2	4,132.9	4,868.2	2,355.2	7,223.4	237.8	796.5	1,034.3
1981/82	1,034.3	8,118.7	1.2	9,154.2	709.4	82.7	19.4	4,201.8	5,013.3	1,966.9	6,980.2	302.4	1,871.6	2,174.0
1982/83	2,174.0	8,235.1	0.9	10,410.0	774.3	109.0	14.5	4,522.3	5,420.1	1,870.0	7,290.1	1,166.3	1,953.6	3,119.9
1983/84	3,119.9	4,174.7	2.5	7,297.1	868.9	85.0	18.9	3,735.9	4,708.7	1,865.2	6,573.9	334.0	389.2	723.2
1984/85 4/	723.2	7,656.2	3.0	8,382.4	- -	1,065.0	- -	4,150.4	5,215.4	1,925.0	7,140.4			1,242.0
1985/86*	1,242.0	8,265.6 (± 686)	1.0	9,508.6 (± 686)	- -	1,120.0 (± 35)	- -	4,324.6 (± 330)	5,444.6 (± 330)	1,700.0 (± 250)	7,144.6 (± 500)			2,364.0 (± 475)

Year beginning October 1	Area: National program	Area: Set-aside and diverted	Area: Planted	Area: Harvested for grain	Yield per harvested acre	Average prices: Received by farmers 5/	St. Louis No. 2 Yellow	Omaha No. 2 Yellow	Gulf Ports No. 2 Yellow	Government-support program: National average loan rate	Target price	Total payments to participants
	Million acres				Bushels	Dollars per bushel						Mil. dol.
1980/81	84.1	---	84.0	73.0	91.0	3.11	3.35	3.13	3.54	2.25	2.35	7/ 280
1981/82	80.5	---	84.1	74.5	108.9	2.50	2.61	2.46	2.83	2.40	2.40	7/ 92
1982/83	---	2.1	81.9	72.7	113.2	2.68	2.98	2.82	3.16	2.55	2.70	8/ 292
1983/84	---	32.2	60.2	51.5	81.1	3.25	3.45	3.20	3.63	2.65	2.86	9/ 904
1984/85 4/	---	4.0	80.4	71.8	106.6	2.65	6/ 2.81	6/ 2.65	6/ 3.01	2.55	3.03	10/ 1,690
1985/86			83.2	74.8	110.6	2.40-2.60				2.55	3.03	

1/ Includes industrial products. 2/ Malt beverage and distilled liquor products converted to a corn basis. 3/ Includes quantity under loan and farmer-owned reserve. 4/ Preliminary. 5/ Excludes support payments. 6/ October 1984-July 1985 average. 7/ Disaster payments. 8/ Deficiency and disaster payments. 9/ Diversion payments. 10/ Deficiency payments. *The probability is 2 out of 3 that the outcome will be within this range.

Table 3.--Sorghum: Marketing year supply and disappearance, area, and prices, 1980-85

Year beginning October 1	Supply: Beginning stocks	Supply: Production	Supply: Imports	Supply: Total	Disappearance: Domestic use: Food	Alc. beverages	Seed	Feed and residual	Total	Exports	Total disappearance	Ending stocks Sept. 30: Govt. owned	Privately owned 1/	Total
							Million bushels							
1980/81	146.4	579.3	---	725.7	5.0	4.3	2.0	301.3	312.6	304.6	617.2	38.2	70.3	108.5
1981/82	108.5	875.8	---	984.3	4.3	4.8	2.0	427.7	438.8	249.1	687.9	42.9	253.5	296.4
1982/83	296.4	835.1	---	1,131.5	4.2	3.9	1.8	507.1	517.0	214.3	731.3	175.6	224.6	400.2
1983/84	400.2	487.5	0.1	887.8	4.2	3.7	2.1	380.6	390.6	246.4	637.0	98.8	152.0	250.8
1984/85 2/	250.8	865.9	0.1	1,116.7	--	20.0	--	524.7	544.7	275.0	819.7			297.0
1985/86*	297.0	1,047.9 (± 77)	---	1,344.9 (± 77)	--	20.0	--	549.9 (± 50)	569.9 (± 55)	275.0 (± 40)	844.9 (± 75)			500.0 (± 70)

	Area: National program	Area: Set-aside and diverted	Area: Planted	Area: Harvested for grain	Yield per harvested acre	Average prices: Received by farmers 3/	Average prices: Kansas City: No. 2 Yellow	Average prices: Texas: No. 2 Yellow	Average prices: Gulf ports: No. 2 Yellow	Government-support program: National average loan rate	Government-support program: Target price	Government-support program: Total payments to participants
	Million acres				Bushels	Dollars per cwt.						Mil. dol.
1980/81	12.8	---	15.6	12.5	46.3	5.25	5.36	5.86	6.16	3.82	4.46	5/ 101
1981/82	14.3	---	15.9	13.7	64.0	4.25	44.29	4.85	4.97	4.07	4.55	6/ 268
1982/83	---	0.7	16.0	14.1	59.1	4.50	4.96	5.30	5.55	4.32	4.64	6/ 67
1983/84	---	5.7	11.9	10.0	48.7	5.07	5.13	5.48	5.65	4.50	4.86	7/ 114
1984/85 2/	---	0.6	17.2	15.3	56.4	4.29	4/ 4.50	4/ 5.02	4/ 5.00	4.32	5.14	8/ 160
1985/86			17.9	16.2	64.9	4.02-4.38				4.32	5.14	

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Excludes support payments. 4/ October 1984-July 1985 average. 5/ Disaster payments. 6/ Deficiency and disaster payments. 7/ Diversion payments. 8/ Deficiency payments. *The probability is 2 out of 3 that the outcome will be within this range.

Table 4.--Barley: Marketing year supply and disappearance, area, and prices, 1980-85

Year beginning June 1	Supply: Beginning stocks	Supply: Production	Supply: Imports	Supply: Total	Disappearance: Domestic use: Food	Disappearance: Domestic use: Alc. beverages	Disappearance: Domestic use: Seed	Disappearance: Domestic use: Feed and residual	Disappearance: Domestic use: Total	Disappearance: Exports	Disappearance: Total disappearance	Ending stocks May 31: Govt. owned	Ending stocks May 31: Privately owned 1/	Ending stocks May 31: Total
	Million bushels													
1980/81	192.1	361.1	10.2	563.4	7.0	155.3	13.2	173.9	349.4	76.7	426.1	3.4	133.9	137.3
1981/82	137.3	473.5	9.6	620.4	6.9	151.1	16.3	198.2	372.5	100.1	472.6	3.3	144.5	147.8
1982/83	147.8	515.9	10.7	674.4	7.2	145.5	17.4	240.4	410.5	47.2	457.7	6.0	210.7	216.7
1983/84	216.7	508.9	7.1	732.7	7.0	142.5	19.9	282.4	451.8	91.5	543.3	11.9	177.5	189.4
1984/85 2/	189.4	596.5	10.1	796.0	7.0	143.4	21.2	299.9	471.5	76.9	548.4	15.6	232.0	247.6
1985/86*	247.6	599.7 (± 31)	10.0	857.3 (± 31)	--	170.0 (± 10)	--	299.3 (± 25)	469.3 (± 30)	60.0 (± 15)	529.3 (± 40)			328.0 (± 60)

Year beginning June 1	Area: National program	Area: Set-aside and diverted	Area: Planted	Area: Harvested for grain	Yield per harvested acre	Average prices: Received by farmers 3/	Average prices: Minneapolis: No. 2 or better, feed	Average prices: Minneapolis: No. 3 or better, malting	Average prices: Portland: No. 2	Government-support program: National average loan rate	Government-support program: Target price	Government-support program: Total payments to participants
	Million acres				Bushels	Dollars per bushel						Mil. dol.
1980/81	8.7	---	8.3	7.3	49.7	2.84	2.60	3.64	3.34	1.83	2.55	6/ 31
1981/82	10.2	---	9.6	9.0	52.4	2.44	2.21	3.06	2.87	1.95	2.60	5/ 63
1982/83	---	0.4	9.5	9.0	57.2	2.22	1.76	2.53	2.52	2.08	2.60	7/ 60
1983/84	---	1.1	10.4	9.7	52.3	2.50	2.48	2.84	2.91	2.16	2.60	8/ 72
1984/85 2/	---	0.5	11.9	11.2	53.4	2.30	2.09	2.55	2.59	2.08	2.60	7/ 50
1985/86			13.1	11.8	51.0	2.00-2.20	4/ 1.78	4/ 2.35	4/ 2.26	2.08	2.60	

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Excludes support payments. 4/ June-July 1985 average. 5/ Deficiency and disaster payments. 6/ Disaster payments. 7/ Deficiency payments. 8/ Deficiency and diversion payments. *The probability is 2 out of 3 that the outcome will be within this range.

Table 5.--Oats: Marketing year supply and disappearance, area, and prices, 1980-85

Year beginning June 1	Supply: Beginning stocks	Supply: Production	Supply: Imports	Supply: Total	Disappearance: Domestic use: Food	Alc. beverages	Seed	Feed and residual	Total	Exports	Total disappearance	Ending stocks May 31: Govt. owned	Privately owned 1/	Total
	Million bushels													
1980/81	236.4	458.8	1.3	696.5	41.0	---	33.0	432.2	506.2	13.3	519.5	2.3	174.7	177.0
1981/82	177.0	509.5	1.6	688.1	41.2	---	35.4	453.0	529.6	6.6	536.2	0.7	151.2	151.9
1982/83	151.9	592.6	3.9	748.4	41.7	---	43.3	440.6	525.6	3.0	528.6	0.7	219.1	219.8
1983/84	219.8	477.0	30.1	726.9	40.9	---	36.6	466.1	543.6	2.2	545.8	1.5	179.6	181.1
1984/85 2/	181.1	471.9	30.2	683.2	41.0	---	33.2	428.2	502.4	1.3	503.7	1.6	177.9	179.5
1985/86*	179.5	519.0 (± 24)	20.0	718.5 (± 24)	-- 80.0 -- (± 5)			424.5 (± 40)	504.5 (± 45)	2.0	506.5 (± 45)			212.0 (± 30)

Year beginning June 1	Area: National program	Area: Set-aside and diverted 3/	Area: Planted	Area: Harvested for grain	Yield per harvested acre	Average prices: Received by farmers 4/	Minneapolis: No. 2 white, heavy	Portland: No. 2 white, heavy	Toledo: No. 2	Government-support program: National average loan rate	Target price	Total payments to participants
	Million acres				Bushels	Dollars per bushel						Mil. dol.
1980/81	---	---	13.4	8.7	53.0	1.79	2.04	2.42	2.17	1.16	---	---
1981/82	---	---	13.6	9.4	54.2	1.89	2.14	2.36	2.23	1.24	---	---
1982/83	---	0.1	14.0	10.3	57.8	1.49	1.69	2.18	1.55	1.31	1.50	---
1983/84	---	0.3	20.3	9.1	52.6	1.67	1.87	1.95	2.01	1.36	1.60	6/ 13
1984/85 2/	---	0.1	12.4	8.1	58.1	1.71	1.81	2.12	1.92	1.31	1.60	---
1985/86			13.1	8.8	59.3	1.40-1.60	5/ 1.52	5/ 2.19	5/ 1.44	1.31	1.60	

1/ Includes quantity under loan and farmer-owned reserve. 2/ Preliminary. 3/ Not included in the program until 1982. 4/ Excludes support payments. 5/ June-July 1985 average. 6/ Deficiency and diversion payments. *The probability is 2 out of 3 that the outcome will be within this range.

Table 6.--Feed grains: Feed year supply and disappearance, specified periods, 1980-85
(corn, sorghum, oats, barley)

Year and periods beginning October 1	Supply				Disappearance							Ending stocks		
					Domestic use								Privately:	
	Beginning stocks	Production	Imports	Total	Food	Alc. beverages	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	owned 1/	Total
	Million metric tons													
1980/81														
Oct.-Dec.	60.4	183.4	0.1	243.9	3.7	1.2	0.1	45.3	50.3	20.7	71.1	7.7	165.1	172.9
Jan.-Mar.	172.9	---	0.1	173.0	3.2	1.3	0.3	32.1	36.9	18.7	55.6	7.6	109.8	117.4
Apr.-May	117.4	---	2/	117.4	2.8	1.0	0.8	20.8	25.4	11.3	36.7	7.6	73.1	80.7
June-Sept.	80.7	17.7	0.1	98.5	7.5	1.9	0.2	24.7	34.3	18.8	53.1	7.1	38.3	45.4
Mkt. year	60.4	201.1	0.3	261.8	17.2	5.4	1.4	122.9	146.9	69.5	216.4	7.1	38.3	45.4
1981/82														
Oct.-Dec.	45.4	228.5	0.1	274.0	4.1	1.2	0.1	46.3	51.7	16.6	68.3	7.4	198.3	205.7
Jan.-Mar.	205.7	---	0.1	205.8	3.5	1.4	0.3	36.3	41.5	14.8	56.3	7.7	141.8	149.5
Apr.-May	149.5	---	0.1	149.6	3.1	1.0	0.9	19.8	24.8	11.2	36.0	7.9	105.7	113.6
June-Sept.	113.6	19.8	0.1	133.5	8.2	1.9	0.2	25.7	36.0	15.8	51.8	8.9	72.8	81.7
Mkt. year	45.4	248.3	0.4	294.1	18.9	5.5	1.5	128.1	154.0	58.4	212.4	8.9	72.8	81.7
1982/83														
Oct.-Dec	81.7	230.4	0.1	312.2	4.7	1.4	0.1	46.5	52.7	14.9	67.6	12.2	232.4	244.6
Jan.-Mar.	244.6	---	0.1	244.7	3.8	1.5	0.2	40.2	45.7	14.8	60.5	13.6	170.6	184.2
Apr.-May	184.2	---	0.1	184.3	3.3	1.0	0.9	24.4	29.6	8.3	37.9	14.0	132.4	146.4
June-Sept.	146.4	18.0	0.3	164.7	8.8	2.1	0.2	29.5	40.6	16.1	56.7	34.3	73.7	108.0
Mkt. year	81.7	248.4	0.6	330.7	20.6	6.0	1.4	140.6	168.6	54.1	222.7	34.3	73.7	108.0
1983/84														
Oct.-Dec.	108.0	118.4	0.1	226.5	5.3	1.2	0.1	49.3	55.9	15.7	71.6	36.3	118.6	154.9
Jan.-Mar.	154.9	---	0.2	155.1	4.3	1.4	0.2	29.4	35.3	15.5	50.8	35.2	69.1	104.3
Apr.-May	104.3	---	0.1	104.4	4.0	1.0	1.1	18.1	24.2	9.6	33.8	24.6	46.0	70.6
June-Sept.	70.6	19.8	0.2	90.6	9.3	1.8	0.1	20.3	31.5	15.0	46.5	11.3	32.8	44.1
Mkt. year	108.0	138.2	0.6	246.8	22.9	5.4	1.5	117.1	146.9	55.8	202.7	11.3	32.8	44.1
1984/85														
Oct.-Dec.	44.1	216.5	0.2	260.8	5.6	1.4	0.1	53.5	60.6	18.3	78.9	10.5	171.4	181.9
Jan.-Mar.3/	181.9	---	0.2	182.1	- 6.2 -		0.1	35.6	41.9	16.7	58.6	10.2	113.3	123.5
Apr.-May	123.5	---	0.2	123.7	- 5.7 -		1.1	18.8	25.6	9.0	34.6	10.3	78.8	89.1
June-Sept.														
Mkt. year														

1/ Includes quantity under loan and farmer-owned reserve. 2/ Less than 50,000 metric tons. 3/ Beginning 1985 food and alcohol combined.

Table 7.--Corn: Marketing year supply and disappearance, specified periods, 1980-85

Year and periods beginning October 1	Supply				Disappearance							Ending stocks		
					Domestic use									
	Beginning stocks	Production	Imports	Total	Food 1/	Alc. beverages 2/	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	Privately owned 3/	Total
					Million bushels									
1980/81														
Oct.-Dec.	1,617.1	6,639.4	0.2	8,256.7	136.3	16.6	---	1,519.3	1,672.2	727.8	2,400.0	254.3	5,602.4	5,856.7
Jan.-Mar.	5,856.7	---	0.3	5,857.0	116.3	18.3	4.0	1,099.4	1,238.0	632.9	1,870.9	250.0	3,736.1	3,986.1
Apr.-May	3,986.1	---	0.1	3,986.2	106.7	13.8	12.2	684.3	817.0	395.7	1,212.7	251.6	2,521.9	2,773.5
June-Sept.	2,773.5	---	0.6	2,774.1	282.5	24.6	4.0	829.9	1,141.0	598.8	1,739.8	237.8	796.5	1,034.3
Mkt. year	1,617.1	6,639.4	1.2	8,257.7	641.8	73.3	20.2	4,132.9	4,868.2	2,355.2	7,223.4	237.8	796.5	1,034.3
1981/82														
Oct.-Dec.	1,034.3	8,118.7	0.4	9,153.4	153.2	16.8	---	1,517.2	1,687.2	545.5	2,232.7	247.6	6,673.1	6,920.7
Jan.-Mar.	6,920.7	---	0.3	6,921.0	128.4	20.2	3.9	1,180.9	1,333.4	489.4	1,822.8	261.7	4,836.5	5,098.2
Apr.-May	5,098.2	---	0.1	5,098.3	119.4	15.2	12.1	662.5	809.2	409.0	1,218.2	269.7	3,610.4	3,880.1
June-Sept.	3,880.1	---	0.4	3,880.5	308.4	30.5	3.4	841.2	1,183.5	523.0	1,706.5	302.4	1,871.6	2,174.0
Mkt. year	1,034.3	8,118.7	1.2	9,154.2	709.4	82.7	19.4	4,201.8	5,013.3	1,966.9	6,980.2	302.4	1,871.6	2,174.0
1982/83														
Oct.-Dec.	2,174.0	8,235.1	0.3	10,409.4	175.2	27.9	---	1,488.9	1,692.0	512.7	2,204.7	429.0	7,775.7	8,204.7
Jan.-Mar.	8,204.7	---	0.2	8,204.9	140.0	28.0	1.3	1,329.7	1,499.0	507.9	2,006.9	483.4	5,714.6	6,198.0
Apr.-May	6,198.0	---	0.1	6,198.1	125.0	17.6	10.3	812.8	965.7	308.5	1,274.2	491.7	4,432.2	4,923.9
June-Sept.	4,923.9	---	0.3	4,924.2	334.1	35.5	2.9	890.9	1,263.4	540.9	1,804.3	1,166.3	1,953.6	3,119.9
Mkt. year	2,174.0	8,235.1	0.9	10,410.0	774.3	109.0	14.5	4,522.3	5,420.1	1,870.0	7,290.1	1,166.3	1,953.6	3,119.9
1983/84														
Oct.-Dec.	3,119.9	4,174.7	0.3	7,294.9	200.3	19.3	---	1,633.5	1,853.1	528.9	2,382.0	1,229.7	3,683.2	4,912.9
Jan.-Mar.	4,912.9	---	0.8	4,913.7	160.0	22.4	1.1	969.1	1,152.6	509.9	1,662.5	1,198.2	2,053.0	3,251.2
Apr.-May	3,251.2	---	0.7	3,251.9	155.0	16.7	15.5	579.9	767.1	339.7	1,106.8	818.6	1,326.5	2,145.1
June-Sept.	2,145.1	---	0.7	2,145.8	353.6	26.6	2.3	553.4	935.9	486.7	1,422.6	334.0	389.2	723.2
Mkt. year	3,119.9	4,174.7	2.5	7,297.1	868.9	85.0	18.9	3,735.9	4,708.7	1,865.2	6,573.9	334.0	389.2	723.2
1984/85														
Oct.-Dec.	723.2	7,656.2	0.9	8,380.3	211.0	24.2	---	1,680.3	1,915.5	608.5	2,524.0	295.5	5,560.8	5,856.3
Jan.-Mar.4/	5,856.3	---	0.3	5,856.6	- 200.8 -		0.6	1,146.6	1,348.0	548.1	1,896.1	255.9	3,704.6	3,960.5
Apr.-May	3,960.5	---	1.0	3,961.5	- 191.0 -		15.0	616.7	822.7	307.0	1,129.7	253.9	2,577.9	2,831.8
June-Sept.														
Mkt. year														

1/ Includes industrial products. 2/ Malt beverage and distilled liquor grain products converted to a corn basis. 3/ Includes quantity under loan and farmer-owned reserve. 4/ Beginning 1985 food and alcohol combined.

Table 8.--Sorghum: Marketing year supply and disappearance, specified periods, 1980-85

Year and periods beginning October 1	Supply				Disappearance							Ending stocks		
					Domestic use					Exports	Total disappearance	Privately: Govt. owned	Privately: owned 1/	Total
	Beginning stocks	Production	Imports	Total	Food	Alc. beverages	Seed	Feed and residual	Total					
	Million bushels													
1980/81														
Oct.-Dec.	146.4	579.3	2/	725.7	1.6	1.2	---	192.1	194.9	66.2	261.1	43.7	420.9	464.6
Jan.-Mar.	464.6	---	2/	464.6	1.6	0.9	0.2	63.9	66.6	84.1	150.7	43.5	270.4	313.9
Apr.-May	313.9	---	2/	313.9	0.8	0.7	1.2	85.0	87.7	41.7	129.4	43.8	140.7	184.5
June-Sept.	184.5	---	2/	184.5	1.0	1.5	0.6	-39.7	-36.6	112.6	76.0	38.2	70.3	108.5
Mkt. year	146.4	579.3	2/	725.7	5.0	4.3	2.0	301.3	312.6	304.6	617.2	38.2	70.3	108.5
1981/82														
Oct.-Dec.	108.5	875.8	2/	984.3	1.3	1.3	---	215.9	218.5	77.8	296.3	38.4	649.6	688.0
Jan.-Mar.	688.0	---	2/	688.0	1.3	1.3	0.2	149.4	152.2	74.3	226.5	38.2	423.3	461.5
Apr.-May	461.5	---	2/	461.5	0.5	0.8	1.2	57.7	60.2	21.8	82.0	38.3	341.2	379.5
June-Sept.	379.5	---	2/	379.5	1.2	1.4	0.6	4.7	7.9	75.2	83.1	42.9	253.5	296.4
Mkt. year	108.5	875.8	2/	984.3	4.3	4.8	2.0	427.7	438.8	249.1	687.9	42.9	253.5	296.4
1982/83														
Oct.-Dec	296.4	835.1	2/	1,131.5	1.4	1.0	---	251.6	254.0	67.0	321.0	46.7	763.8	810.5
Jan.-Mar.	810.5	---	2/	810.5	1.2	1.0	0.1	124.5	126.8	62.5	189.3	47.8	573.4	621.2
Apr.-May	621.2	---	---	621.2	0.4	0.6	0.8	76.2	78.0	14.1	92.1	54.0	475.1	529.1
June-Sept.	529.1	---	2/	529.1	1.2	1.3	0.9	54.8	58.2	70.7	128.9	175.6	224.6	400.2
Mkt. year	296.4	835.1	2/	1,131.5	4.2	3.9	1.8	507.1	517.0	214.3	731.3	175.6	224.6	400.2
1983/84														
Oct.-Dec.	400.2	487.5	---	887.7	1.3	1.1	---	168.4	170.8	62.1	232.9	189.3	465.5	654.8
Jan.-Mar.	654.8	---	---	654.8	1.3	0.7	0.2	105.2	107.4	77.8	185.2	175.3	294.3	469.6
Apr.-May	469.6	---	---	469.6	0.3	0.6	0.8	69.5	71.2	29.5	100.7	137.4	231.5	368.9
June-Sept.	368.9	---	0.1	369.0	1.3	1.3	1.1	37.5	41.2	77.0	118.2	98.8	152.0	250.8
Mkt. year	400.2	487.5	0.1	887.8	4.2	3.7	2.1	380.6	390.6	246.4	637.0	98.8	152.0	250.8
1984/85														
Oct.-Dec.	250.8	865.9	0.1	1,116.8	1.4	4.0	---	301.9	307.3	84.6	391.9	105.7	619.2	724.9
Jan.-Mar.3/	724.9	---	---	724.9	- 4.2	-	0.2	139.4	143.8	99.9	243.7	134.5	346.7	481.2
Apr.-May	481.2	---	---	481.2	- 2.6	-	1.6	73.8	78.0	42.9	120.9	135.6	224.7	360.3
June-Sept.														
Mkt. year														

1/ Includes quantity under loan and farmer-owned reserve. 2/ Less than 50,000 bushels. 3/ Beginning 1985 food and alcohol combined.

Table 9.--Barley: Marketing year supply and disappearance, specified periods, 1980-85

Year and periods beginning June 1	Supply				Disappearance							Ending stocks		
					Domestic use								Privately:	
	Beginning stocks	Production	Imports	Total	Food	Alc. beverages	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	owned 1/	Total
	Million bushels													
1980/81														
June-Sept.	192.1	361.1	3.5	556.7	2.5	56.6	1.2	78.8	139.1	24.9	164.0	3.5	389.2	392.7
Oct.-Dec.	392.7	---	2.3	395.0	1.7	33.9	2.2	32.2	70.0	21.4	91.4	3.5	300.1	303.6
Jan.-Mar.	303.6	---	2.7	306.3	1.7	36.0	3.7	38.7	80.1	22.7	102.8	3.4	200.1	203.5
Apr.-May	203.5	---	1.7	205.2	1.1	28.8	6.1	24.2	60.2	7.7	67.9	3.4	133.9	137.3
Mkt. year	192.1	361.1	10.2	563.4	7.0	155.3	13.2	173.9	349.4	76.7	426.1	3.4	133.9	137.3
1981/82														
June-Sept.	137.3	473.5	2.4	613.2	2.5	54.7	1.3	75.4	133.9	32.6	166.5	3.3	443.4	446.7
Oct.-Dec.	446.7	---	2.4	449.1	1.7	32.1	2.3	50.7	86.8	33.0	119.8	3.3	326.0	329.3
Jan.-Mar.	329.3	---	2.7	332.0	1.7	37.2	4.0	41.7	84.6	23.1	107.7	3.3	221.0	224.3
Apr.-May	224.3	---	2.1	226.4	1.0	27.1	8.7	30.4	67.2	11.4	78.6	3.3	144.5	147.8
Mkt. year	137.3	473.5	9.6	620.4	6.9	151.1	16.3	198.2	372.5	100.1	472.6	3.3	144.5	147.8
1982/83														
June-Sept.	147.8	515.9	5.1	668.8	2.5	51.3	1.3	92.2	147.3	25.4	172.7	3.9	492.2	496.1
Oct.-Dec.	496.1	---	1.9	498.0	1.8	32.1	2.8	40.7	77.4	6.5	83.9	4.8	409.3	414.1
Jan.-Mar.	414.1	---	2.2	416.3	1.8	35.5	3.9	68.5	109.7	12.7	122.4	5.8	288.1	293.9
Apr.-May	293.9	---	1.5	295.4	1.1	26.6	9.4	39.0	76.1	2.6	78.7	6.0	210.7	216.7
Mkt. year	147.8	515.9	10.7	674.4	7.2	145.5	17.4	240.4	410.5	47.2	457.7	6.0	210.7	216.7
1983/84														
June-Sept.	216.7	508.9	3.4	729.0	2.5	50.9	1.2	135.5	190.1	23.4	213.5	9.3	506.2	515.5
Oct.-Dec.	515.5	---	1.5	517.0	1.7	30.0	2.4	82.4	116.5	32.9	149.4	11.4	356.2	367.6
Jan.-Mar.	367.6	---	1.2	368.8	1.7	35.2	3.9	34.0	74.8	25.1	99.9	12.0	256.9	268.9
Apr.-May	268.9	---	1.0	269.9	1.1	26.4	12.4	30.5	70.4	10.1	80.5	11.9	177.5	189.4
Mkt. year	216.7	508.9	7.1	732.7	7.0	142.5	19.9	282.4	451.8	91.5	543.3	11.9	177.5	189.4
1984/85														
June-Sept.	189.4	596.5	3.6	789.5	2.5	50.4	1.2	132.1	186.2	29.7	215.9	12.2	561.4	573.6
Oct.-Dec.	573.6	---	3.0	576.6	1.7	30.5	2.8	74.7	109.7	30.7	140.4	13.0	423.2	436.2
Jan.-Mar.	436.2	---	2.2	438.4	1.7	34.3	1.1	68.8	105.9	13.1	119.0	14.2	305.2	319.4
Apr.-May	319.4	---	1.3	320.7	1.1	28.2	16.1	24.3	69.7	3.4	73.1	15.6	232.0	247.6
Mkt. year	189.4	596.5	10.1	796.0	7.0	143.4	21.2	299.9	471.5	76.9	548.4	15.6	232.0	247.6

1/ Includes quantity under loan and farmer-owned reserve.

Table 10.--Oats: Marketing year supply and disappearance, specified periods, 1980-85

Year and periods beginning June 1	Supply				Disappearance							Ending stocks		
					Domestic use								Privately:	
	Beginning stocks	Production	Imports	Total	Food	Alc. beverages	Seed	Feed and residual	Total	Exports	Total disappearance	Govt. owned	owned 1/	Total
	Million bushels													
1980/81														
June-Sept.	236.4	458.8	0.6	695.8	15.0	---	1.8	190.4	207.2	3.9	211.1	2.7	482.0	484.7
Oct.-Dec.	484.7	---	0.2	484.9	10.0	---	1.8	79.2	91.0	2.8	93.8	2.7	388.4	391.1
Jan.-Mar.	391.1	---	0.3	391.4	10.0	---	7.0	115.6	132.6	2.6	135.2	2.5	253.7	256.2
Apr.-May	256.2	---	0.2	256.4	6.0	---	22.4	47.0	75.4	4.0	79.4	2.3	174.7	177.0
Mkt. year	236.4	458.8	1.3	696.5	41.0	---	33.0	432.2	506.2	13.3	519.5	2.3	174.7	177.0
1981/82														
June-Sept.	177.0	509.5	0.3	686.8	16.0	---	2.0	207.2	225.2	3.2	228.4	1.7	456.7	458.4
Oct.-Dec.	458.4	---	0.2	458.6	10.0	---	2.0	80.2	92.2	1.2	93.4	1.7	363.5	365.2
Jan.-Mar.	365.2	---	0.2	365.4	10.0	---	7.3	111.4	128.7	1.2	129.9	1.7	233.8	235.5
Apr.-May	235.5	---	0.9	236.4	5.2	---	24.1	54.2	83.5	1.0	84.5	0.7	151.2	151.9
Mkt. year	177.0	509.5	1.6	688.1	41.2	---	35.4	453.0	529.6	6.6	536.2	0.7	151.2	151.9
1982/83														
June-Sept.	151.9	592.6	0.8	745.3	16.2	---	2.0	167.7	185.9	1.3	187.2	0.6	557.5	558.1
Oct.-Dec.	558.1	---	0.2	558.3	10.0	---	2.0	92.0	104.0	1.0	105.0	0.7	452.6	453.3
Jan.-Mar.	453.3	---	1.6	454.9	10.7	---	7.6	117.3	135.6	0.3	135.9	0.7	318.3	319.0
Apr.-May	319.0	---	1.3	320.3	4.8	---	31.7	63.6	100.1	0.4	100.5	0.7	219.1	219.8
Mkt. year	151.9	592.6	3.9	748.4	41.7	---	43.3	440.6	525.6	3.0	528.6	0.7	219.1	219.8
1983/84														
June-Sept.	219.8	477.0	11.7	708.5	15.8	---	1.9	184.8	202.5	0.8	203.3	1.1	504.1	505.2
Oct.-Dec.	505.2	---	4.9	510.1	9.9	---	1.9	118.8	130.6	0.7	131.3	1.4	377.4	378.8
Jan.-Mar.	378.8	---	10.6	389.4	10.5	---	7.4	101.2	119.1	0.3	119.4	1.5	268.5	270.0
Apr.-May	270.0	---	2.9	272.9	4.7	---	25.4	61.3	91.4	0.4	91.8	1.5	179.6	181.1
Mkt. year	219.8	477.0	30.1	726.9	40.9	---	36.6	466.1	543.6	2.2	545.8	1.5	179.6	181.1
1984/85														
June-Sept.	181.1	471.9	5.8	658.8	15.7	---	1.9	166.7	184.3	0.6	184.9	1.5	472.4	473.9
Oct.-Dec.	473.9	---	9.1	483.0	10.0	---	5.3	110.2	125.5	0.3	125.8	1.6	355.6	357.2
Jan.-Mar.	357.2	---	8.3	365.5	10.4	---	5.6	93.4	109.4	0.2	109.6	1.5	254.4	255.9
Apr.-May	255.9	---	7.0	262.9	4.9	---	20.4	57.9	83.2	0.2	83.4	1.6	177.9	179.5
Mkt. year	181.1	471.9	30.2	683.2	41.0	---	33.2	428.2	502.4	1.3	503.7	1.6	177.9	179.5

1/ Includes quantity under loan and farmer-owned reserve.

Table 11.--Average prices received by farmers, United States, by months, 1980-85

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average weighted by sales 1/
						Dollars per bushel							
Corn													
1980	2.99	3.10	3.19	3.19	3.22	3.25	3.24	3.24	3.17	3.14	2.87	2.55	3.11
1981	2.45	2.34	2.39	2.54	2.44	2.46	2.55	2.60	2.57	2.50	2.30	2.15	2.50
1982	1.98	2.13	2.26	2.36	2.56	2.71	2.95	3.03	3.04	3.13	3.35	3.32	2.68
1983	3.15	3.17	3.15	3.15	3.11	3.21	3.32	3.34	3.36	3.30	3.13	2.90	3.25
1984	2.65	2.55	2.56	2.64	2.62	2.66	2.70	2.67	2.63	*2.63			
1985													
Sorghum						Dollars per cwt							
1980	5.36	5.48	5.49	5.48	5.33	5.17	5.25	5.16	5.03	4.84	4.55	4.07	5.25
1981	3.90	3.87	3.95	4.09	4.08	4.00	4.10	4.35	4.17	3.96	3.95	3.80	4.25
1982	3.70	3.78	3.97	4.09	4.42	4.67	4.92	5.05	5.05	5.03	5.29	5.26	4.50
1983	5.01	4.98	4.93	4.92	4.74	4.85	5.00	5.08	4.94	4.64	4.59	4.24	5.07
1984	4.05	4.04	4.15	4.16	4.10	4.23	4.46	4.55	4.53	*4.37			
1985													

Item and year beginning June 1	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Average weighted by sales 1/
							Dollars per bushel						
Oats													
1980	1.48	1.50	1.53	1.63	1.65	1.84	1.92	1.98	2.01	2.08	2.05	2.05	1.79
1981	1.99	1.84	1.72	1.74	1.78	1.88	1.94	1.97	1.99	2.02	1.99	1.99	1.89
1982	1.88	1.57	1.39	1.35	1.32	1.40	1.44	1.46	1.48	1.49	1.54	1.54	1.49
1983	1.51	1.46	1.45	1.55	1.62	1.67	1.73	1.81	1.88	1.82	1.82	1.84	1.67
1984	1.80	1.71	1.67	1.67	1.74	1.68	1.72	1.74	1.70	1.69	1.69	1.59	1.71
1985	1.59	*1.37											
Barley													
1980	2.36	2.52	2.59	2.65	2.81	2.90	2.97	3.09	3.05	3.04	3.04	3.00	2.84
1981	2.94	2.41	2.37	2.44	2.38	2.49	2.48	2.50	2.40	2.40	2.42	2.53	2.44
1982	2.39	2.16	2.20	2.17	1.98	2.06	2.19	2.16	2.00	2.09	2.22	2.36	2.22
1983	2.32	2.20	2.34	2.46	2.53	2.55	2.55	2.55	2.47	2.50	2.54	2.78	2.50
1984	2.61	2.54	2.26	2.25	2.29	2.25	2.20	2.24	2.20	2.17	2.16	2.25	2.30
1985	2.14	*1.92											

Item and year beginning May 1	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Average weighted by sales
							Dollars per ton						
Hay (mid-month)													
1980	69.30	65.10	67.00	67.20	71.90	77.20	75.00	74.80	72.80	72.50	69.80	68.20	71.00
1981	75.30	66.90	64.00	63.90	62.70	64.80	65.40	65.70	67.90	69.90	69.50	73.30	67.30
1982	77.50	69.60	66.10	65.00	66.80	67.10	68.70	68.60	70.30	73.20	69.90	74.00	69.30
1983	78.10	72.70	71.20	71.20	74.70	76.80	75.10	76.70	76.60	78.70	79.40	79.80	75.80
1984	85.00	78.00	72.60	71.70	71.70	71.90	72.30	75.30	74.00	75.40	72.50	73.40	73.80
1985	78.90	71.80	68.80										

1/ Includes an allowance for unredeemed loans and purchase agreement deliveries valued at the average loan rate, by States; excludes Government payments. *Preliminary.
Source: Agricultural Prices, Crop Reporting Board, USDA.

Table 12.--Cash prices at principal markets, 1980-85

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Simple average
							Dollars per bushel						
CORN No. 2 Yellow, St. Louis													
1980	3.35	3.53	3.59	3.60	3.47	3.42	3.49	3.42	3.33	3.34	3.03	2.61	3.35
1981	2.53	2.59	2.54	2.65	2.61	2.66	2.78	2.78	2.75	2.68	2.42	2.32	2.61
1982	2.12	2.43	2.49	2.52	2.79	2.99	3.24	3.24	3.27	3.39	3.68	3.60	2.98
1983	3.50	3.53	3.45	3.41	3.31	3.55	3.61	3.58	3.57	3.43	3.33	3.09	3.45
1984	2.84	2.77	2.75	2.86	2.84	2.86	2.88	2.81	2.79	2.72			
1985													
CORN No. 2 Yellow, Omaha													
1980	3.16	3.34	3.30	3.29	3.18	3.17	3.24	3.24	3.19	3.15	2.79	2.51	3.13
1981	2.44	2.39	2.37	2.47	2.45	2.48	2.61	2.65	2.65	2.54	2.23	2.23	2.46
1982	2.12	2.35	2.37	2.42	2.62	2.82	3.09	3.10	3.11	3.18	3.39	3.32	2.82
1983	3.23	3.24	3.17	3.11	3.03	3.25	3.33	3.35	3.37	3.22	3.11	2.94	3.20
1984	2.71	2.61	2.55	2.60	2.61	2.68	2.73	2.68	2.70	2.61			
1985													
SORGHUM No. 2 Yellow, Kansas City							Dollars per cwt						
1980	5.65	5.91	5.82	5.79	5.52	5.46	5.49	5.38	5.23	5.29	4.58	4.16	5.36
1981	4.14	4.14	4.27	4.44	4.26	4.28	4.45	4.48	4.50	4.38	4.02	4.06	4.29
1982	3.85	4.25	4.37	4.54	4.87	5.08	5.30	5.37	5.37	5.32	5.69	5.55	4.96
1983	5.37	5.25	5.16	5.09	5.03	5.40	5.36	5.39	5.40	4.95	4.74	4.46	5.13
1984	4.25	4.28	4.32	4.48	4.33	4.58	4.76	4.74	4.74	4.50			
1985													

Item and year beginning June 1	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Simple average
							Dollars per bushel						
OATS No. 2 Heavy, Minneapolis													
1980	1.67	1.80	1.70	1.86	1.96	2.15	2.16	2.20	2.25	2.23	2.21	2.23	2.04
1981	2.18	2.02	1.99	2.02	2.09	2.28	2.10	2.23	2.26	2.16	2.21	2.16	2.14
1982	2.12	1.87	1.53	1.51	1.51	1.67	1.67	1.67	1.63	1.63	1.73	1.71	1.69
1983	1.67	1.60	1.79	1.94	2.00	1.97	1.94	1.98	1.82	1.88	1.89	1.96	1.87
1984	1.92	1.84	1.77	1.79	1.84	1.92	1.87	1.81	1.82	1.79	1.73	1.65	1.81
1985	1.59	1.44											
BARLEY No. 2 or Better Feed, Minneapolis													
1980	2.15	2.48	2.39	2.43	2.77	3.03	2.75	2.81	2.90	2.63	2.51	2.39	2.60
1981	2.09	2.26	2.35	2.21	2.26	2.31	2.06	2.20	2.27	2.16	2.16	2.24	2.21
1982	2.12	1.85	1.72	1.69	1.54	1.58	1.59	1.63	1.72	1.73	2.01	1.95	1.76
1983	1.96	1.95	2.42	2.61	2.60	2.53	2.39	2.55	2.56	2.65	2.74	2.77	2.48
1984	2.59	2.18	2.13	2.05	2.10	2.06	1.88	1.98	1.99	1.97	2.05	2.05	2.09
1985	1.90	1.66											
BARLEY No. 3 or Better Malting, 65% or Better Plump, Minneapolis													
1980	2.99	3.36	3.27	3.63	3.80	3.88	3.77	3.75	3.83	3.71	3.84	3.80	3.64
1981	3.34	2.95	3.15	3.05	3.02	3.07	2.92	3.00	3.14	2.99	2.98	3.05	3.06
1982	2.93	2.63	2.48	2.37	2.42	2.45	2.37	2.38	2.42	2.45	2.68	2.76	2.53
1983	2.60	2.54	2.76	2.90	2.96	2.95	2.77	2.85	2.76	2.91	3.04	3.06	2.84
1984	3.04	2.86	2.48	2.44	2.43	2.43	2.36	2.46	2.47	2.51	2.52	2.55	2.55
1985	2.46	2.55											

Source: Grain and Feed Market News, AMS, USDA.

Table 13.--Feed-price ratios for livestock, poultry, and milk, by months, 1980-85

Item and year beginning October 1	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Average
HOG/CORN, U.S. basis 1/													
1980	15.8	14.7	13.7	12.8	12.8	11.9	12.0	12.6	15.0	15.7	17.1	19.1	14.4
1981	18.4	17.7	16.3	17.1	19.8	19.8	20.1	21.8	22.4	23.1	26.6	28.5	21.0
1982	28.2	24.6	23.7	23.4	21.9	18.6	15.9	15.1	14.4	13.9	13.9	13.3	18.9
1983	12.8	11.8	14.0	15.4	14.6	14.3	14.3	14.1	14.5	15.8	16.2	16.0	14.5
1984 2/	16.5	18.4	19.0	18.2	18.4	16.4	15.3	15.5	17.0	17.8			
1985													
BEEF-STEER/CORN, Omaha 3/													
1980	21.3	19.5	19.5	19.1	19.3	19.4	20.0	20.6	21.4	21.5	23.8	26.0	21.0
1981	25.2	25.0	25.0	24.6	25.9	26.5	26.5	27.2	26.5	26.1	29.2	27.5	26.3
1982	27.7	25.1	25.2	24.5	23.4	22.7	21.9	21.8	21.2	19.6	18.1	17.8	22.4
1983	18.4	18.3	19.8	21.6	22.1	21.1	20.4	19.7	19.1	20.4	20.7	21.3	20.2
1984 2/	22.4	24.6	25.6	24.8	24.1	22.2	21.5	21.5	21.0	20.6			
1985													
MILK/FEED, U.S. basis 4/													
1980	1.43	1.40	1.39	1.39	1.39	1.41	1.39	1.35	1.36	1.40	1.43	1.48	1.40
1981	1.53	1.56	1.54	1.55	1.53	1.53	1.51	1.46	1.47	1.47	1.50	1.57	1.52
1982	1.61	1.62	1.60	1.59	1.56	1.55	1.49	1.45	1.43	1.45	1.41	1.36	1.51
1983	1.39	1.36	1.34	1.33	1.33	1.34	1.32	1.32	1.33	1.35	1.43	1.48	1.36
1984 2/	1.56	1.62	1.59	1.58	1.57	1.57	1.51	1.47	1.44	1.44			
1985													
EGG/FEED, U.S. basis 5/													
1980	5.7	6.0	6.6	5.9	5.7	5.6	5.9	5.2	5.2	5.5	5.8	6.4	5.8
1981	6.5	7.2	6.7	6.6	6.8	7.1	6.6	5.6	5.3	5.7	5.4	6.0	6.3
1982	6.3	6.3	6.0	5.7	5.8	6.1	5.8	6.0	5.8	5.7	6.1	6.0	6.0
1983	6.2	6.9	7.7	8.8	8.5	7.4	8.6	6.5	5.8	5.8	5.8	5.9	7.0
1984 2/	5.7	6.5	6.2	5.5	5.6	6.2	5.7	5.5	5.8	5.8			
1985													
BROILER/FEED, U.S. basis 6/													
1980	2.8	2.5	2.5	2.6	2.6	2.6	2.3	2.4	2.6	2.6	2.5	2.4	2.5
1981	2.4	2.4	2.3	2.6	2.6	2.6	2.5	2.6	2.7	2.6	2.5	2.6	2.5
1982	2.5	2.5	2.5	2.6	2.7	2.4	2.3	2.4	2.6	2.8	2.8	2.7	2.6
1983	2.5	2.8	2.9	3.1	3.1	3.1	2.7	2.7	2.7	3.0	2.7	2.8	2.8
1984 2/	2.6	2.8	2.6	2.8	2.8	2.8	2.8	2.9	3.1	3.1			
1985													
TURKEY/FEED, U.S. basis 7/													
1980	4.0	3.9	3.5	3.1	3.1	3.2	3.0	3.0	3.3	3.3	3.2	3.1	3.3
1981	2.8	3.1	2.9	3.0	3.0	3.0	3.0	3.0	3.2	3.4	3.5	3.8	3.1
1982	3.9	3.9	3.0	2.9	2.9	2.9	2.7	2.9	3.0	2.8	2.8	3.0	3.0
1983	3.0	3.1	3.5	3.6	3.2	3.3	3.3	3.3	3.3	3.6	3.8	3.9	3.4
1984 2/	4.4	5.0	5.5	4.8	3.9	3.7	3.8	3.7	3.9	4.2			
1985													

1/ Bushels of corn equal in value to 100 pounds of hog, live weight.
2/ Preliminary.
3/ Based on price of choice beef-steers, 900-1,100 pounds.
4/ Pounds of 16 percent mixed dairy feed equal in value to 1 pound whole milk.
5/ Pounds of laying feed equal in value to 1 dozen eggs.
6/ Pounds of broiler grower feed equal in value to 1 pound broiler, live weight.
7/ Pounds of turkey grower feed equal in value to 1 pound turkey, live weight.

Source: Agricultural Prices, Crop Reporting Board, USDA.

Table 14.--Price trends, selected feeds, and corn products

Item	Unit	Oct.-Sept. 1983/84 1/	1984	1985					
			Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
WHOLESALE, MOSTLY BULK 2/										
Soybean meal, 44% solvent, Decatur	$/ton	188	137	135	125	126	118	112	110	115
Soybean meal, high protein, Decatur	"	203	151	147	137	138	129	121	119	124
Cottonseed meal, 41% solvent, Memphis	"	192	119	110	106	89	83	78	94	100
Linseed meal, 34% solvent, Minneapolis	"	140	106	107	94	84	80	79	75	76
Peanut meal, Southeast mills	"	209	140	*	*	*	*	*	*	*
Meat meal, Ill. prod. pts. 3/	"	205	174	176	173	146	126	108	120	129
Fishmeal, 65% protein, East Coast	"	368	308	309	291	281	280	232	209	206
Gluten feed, Illinois pts.	"	109	81	80	74	62	60	63	69	74
Gluten meal, 60% protein, Illinois pts.	"	260	240	232	216	204	191	173	169	174
Brewers' dried grains, Milwaukee	"	113	78	86	61	46	47	53	70	61
Distillers' dried grain, Lawrenceburg, Ky.	"	170	93	94	96	94	87	83	85	89
Feather meal, Arkansas Pts.	"	246	175	163	150	107	104	81	102	123
Wheat bran, Kansas City	"	95	85	70	63	56	61	65	69	65
Wheat middlings, Kansas City	"	95	85	70	63	56	61	65	69	65
Rice bran, f.o.b. mills, Arkansas	"	82	71	91	74	54	44	52	60	54
Hominy feed, Ill. pts.	"	108	79	81	74	70	79	83	78	82
Alfalfa meal, dehy., Kansas City	"	129	115	111	105	95	94	92	87	87
Cane molasses, New Orleans	"	67	50	50	50	50	50	50	48	41
Molasses beet pulp, Los Angeles	"	124	125	130	130	125	126	113	106	112
Animal fat, Ill. prod. pts. 3/	c/lb.	17.4	18.0	17.3	18.1	17.0	17.0	15.0	13.0	11.7
Urea, 42% N., Fort Worth	$/ton	214	222	222	222	222	222	220	220	220
Corn, No. 2 white, Kansas City	$/bu.	4.70	3.92	3.72	3.33	3.15	3.11	3.09	2.96	2.90
PRICES PAID, U.S. BASIS 4/										
Soybean meal, 44%	$/cwt.	14.36	11.30	11.10	11.00	10.60	10.30	11.10	9.82	9.74
Cottonseed meal, 41%	"	15.68	12.90	12.60	12.30	12.20	11.98	11.90	11.50	11.30
Wheat bran	"	10.42	9.90	9.89	9.81	9.72	9.54	9.47	9.48	9.48
Wheat middlings	"	9.93	9.34	9.25	9.13	9.18	8.88	8.85	8.84	8.80
Broiler grower feed	$/ton	239	215	219	215	214	207	199	196	196
Laying feed	"	213	187	189	189	186	186	183	182	181
Turkey grower feed	"	254	220	216	216	220	214	212	211	210
Chick starter	"	238	210	210	209	209	206	205	202	197
Dairy feed, 16%	"	197	176	177	174	172	171	170	168	168
Beef cattle concentrate, 32-36% protein	$/cwt.	12.92	11.20	11.30	11.00	10.90	10.50	10.42	10.20	10.30
Hog concentrate, 38-42% protein	"	15.75	13.10	13.00	12.90	12.50	12.30	11.80	11.60	11.70
Stock salt	"	6.35	6.26	6.57	6.58	6.50	6.52	6.49	6.47	6.47
CORN PRODUCTS, WHOLESALE 5/										
Corn meal, New York White	$/cwt.	19.89	14.75	14.92	15.96	18.59	18.54	18.25	18.26	18.18
Yellow	"	14.31	12.75	12.92	13.22	13.60	13.54	13.25	13.26	13.18
Grits (brewers'), Chicago	"	11.36	9.76	9.93	10.22	10.60	10.54	10.27	10.59	10.19
Syrup, Chicago West	c/lb.	13.35	10.31	10.31	10.31	11.25	11.25	11.25	11.42	11.48
Sugar (dextrose), Chicago West	"	24.22	24.75	24.76	22.55	22.00	22.00	15.14	16.89	22.10
High-fructose (dried weight in tank cars), Chicago West	"	20.06	18.38	17.96	17.96	17.96	17.96	16.90	19.90	21.13
Corn starch, f.o.b. Midwest	$/cwt.	12.04	11.60	11.89	11.89	11.89	10.36	10.56	10.96	10.60

1/ Preliminary. 2/ Grain and Feed Market News, AMS, USDA, except urea which is from Feedstuffs, Miller Publishing Co., Minneapolis, Minnesota. 3/ Kansas City prices beginning January 1985, Illinois Products Points no longer reported. 4/ Agricultural Prices, ERS, USDA. 5/ Milling and Baking News, Kansas City, Missouri, except starch which is from industry sources. *No longer reported.

Table 15.--Feed concentrate balance, number of animal units, and feed per unit, annual, 1977-84

Item	Year beginning October							
	1977	1978	1979	1980	1981	1982	1983	1984 1/
	Million metric tons							
Feed Grains								
October 1 stocks	43.6	52.7	55.5	60.4	45.4	81.7	108.0	44.1
Production								
Corn	165.2	184.6	201.4	168.6	206.2	209.2	106.0	194.5
Sorghum	19.8	18.6	20.5	14.7	22.2	21.2	12.4	22.0
Oats	8.4	7.6	6.7	7.4	8.6	6.9	6.9	7.5
Barley	9.9	8.3	7.9	10.3	11.2	11.1	13.0	13.1
Total	203.3	219.1	236.5	201.0	248.2	248.4	138.3	237.1
Imports	.3	.3	.3	.3	.4	.6	.6	.7
Wheat fed	6.2	4.1	2.6	2.7	3.1	7.8	12.1	9.5
Rye fed	.3	.2	.2	.2	.1	.1	.1	.1
Byproduct feeds fed	33.8	34.5	38.1	37.9	37.4	37.2	38.9	38.0
Total supply	287.5	310.9	333.2	302.5	334.6	375.8	298.0	329.5
Concentrates fed								
Corn	95.1	99.8	104.7	96.7	98.3	104.4	93.1	105.4
Sorghum	11.6	12.9	11.2	6.9	9.8	11.8	9.3	13.3
Oats	7.5	7.5	7.0	6.1	6.4	6.2	6.6	6.2
Barley	4.3	4.5	4.3	3.6	4.1	5.0	5.8	6.5
Wheat and rye	6.5	4.2	2.6	1.5	3.2	7.8	13.3	11.4
Oilseed meals	16.8	17.2	19.1	17.0	17.3	18.6	17.0	19.9
Animal protein feeds	2.8	2.3	3.0	2.9	2.9	2.9	2.9	1.8
Grain protein feeds	1.7	1.7	1.5	1.5	1.5	2.0	2.1	1.8
Other byproduct feeds	12.6	13.4	10.2	13.0	10.6	11.7	12.3	11.4
Total	158.9	163.5	163.6	149.2	154.1	170.4	162.4	177.7
	Million units							
Grain-consuming animal units (GCAU's)								
Dairy cattle	12.1	12.0	12.1	12.2	12.3	12.4	12.4	12.2
Cattle on feed	20.6	20.3	18.8	17.8	16.3	18.4	17.8	19.1
Other cattle	4.8	4.5	4.6	4.8	4.9	4.8	4.7	4.5
Hogs	19.6	21.7	23.8	22.3	20.3	20.5	20.4	19.7
Poultry	18.8	20.1	21.1	21.6	20.9	20.8	20.9	21.3
Other livestock	1.8	1.8	1.9	2.0	2.0	2.0	2.0	2.0
Total	77.7	80.4	82.3	80.7	76.7	78.9	78.2	78.8
	Tons per unit							
Concentrates fed/GCAU								
Four feed grains	1.53	1.55	1.55	1.40	1.55	1.61	1.47	1.67
All concentrates	2.05	2.03	1.99	1.85	2.01	2.16	2.08	2.26

1/ Forecast (8/12/85).

Table 16.--High-protein feed; quantity fed and high-protein animal units, 1977-84 1/

Year beginning October	Quantity fed (in 44% protein soybean meal equivalent)				High-protein animal units	Fed per animal unit
	Oilseed meal	Animal protein	Grain protein	Total		
		- - - 1,000 metric tons - - -			Million	Pounds
1977	17,259	3,042	982	21,283	104.5	449
1978	18,472	3,050	1,028	22,550	108.0	460
1979	20,152	3,210	689	24,051	114.6	463
1980	18,116	3,661	1,028	22,805	113.5	443
1981	18,974	3,701	1,003	23,678	110.2	474
1982	19,690	2,564	1,035	23,289	109.0	471
1983	17,776	2,331	1,400	21,507	109.4	433
1984 2/	20,841	2,297	1,290	24,428	109.7	445

1/ Excludes urea and other nitrogenous compounds. 2/ Forecast.

Table 17.--Processed feeds; quantity fed, 1977-84 1/

Feed	Year beginning October							
	1977	1978	1979	1980	1981	1982	1983	1984 2/
	- - -1,000 metric tons - - -							
HIGH PROTEIN								
Oilseed meal								
Soybean 3/	14,766	15,758	17,113	15,667	15,777	17,011	15,453	17,691
Cottonseed	1,780	1,534	1,641	1,428	1,779	1,439	1,082	1,617
Linseed	79	122	146	117	100	70	70	115
Peanut	92	93	108	85	114	80	80	100
Sunflower	---	180	359	40	430	302	300	427
Total	16,717	17,687	19,367	17,337	18,200	18,902	16,985	19,950
Animal proteins								
Tankage and meat meal	2,112	2,107	2,356	2,229	2,261	2,254	2,265	1,422
Fishmeal and solubles	379	462	371	344	480	410	365	228
Commercial dried milk products	178	144	144	146	150	149	150	102
Noncommercial milk products	177	140	132	137	130	131	130	81
Total	2,846	2,853	3,003	2,856	3,021	2,944	2,910	1,833
Grain protein feeds								
Gluten feed and meal	1,109	1,083	716	763	941	1,083	1,358	1,052
Brewers' dried grains	256	280	307	290	239	275	263	270
Distillers' dried grains	366	449	449	453	448	602	499	500
Total	1,731	1,812	1,472	1,506	1,628	1,960	2,120	1,822
OTHER								
Wheat millfeeds	4,508	4,484	4,400	4,638	4,578	5,058	5,109	4,350
Rice millfeeds	501	574	633	706	667	624	600	615
Dried and molasses beet pulp	1,316	1,301	1,485	1,165	1,365	1,278	1,147	1,200
Alfalfa meal	1,358	1,243	1,143	994	898	841	750	900
Fats and oils	667	630	635	630	544	509	522	584
Molasses, inedible	3,250	3,100	2,812	3,251	2,540	2,378	2,300	2,400
Miscellaneous byproduct feeds 4/	998	1,000	907	1,000	1,425	1,334	1,517	1,500
Total	12,598	12,392	12,015	12,384	12,017	12,022	11,945	11,549
Grain total	33,892	34,744	35,599	34,083	34,728	35,828	33,960	35,154

1/ Adjusted for stocks, production, foreign trade, and nonfeed uses where applicable. 2/ Forecast. 3/ Includes use in edible soy products and shipments to U.S. territories. 4/ Allowance for hominy feed, oat millfeeds, and screenings.

Table 18.--Hay (all): acreage, supply, and disappearance, 1980-85

Item	Unit	1980/81	1981/82	1982/83	1983/84	1984/85 1/	1985/86 2/
Acreage harvested	Mil. acres	58.9	59.6	59.8	59.7	61.6	61.8
Yield per acre	Tons	2.22	2.39	2.50	2.36	2.45	2.40
Carryover (May 1)	Mil. short tons	33.2	25.4	25.0	28.1	20.1	26.9
Production	"	130.7	142.5	149.2	140.8	150.8	148.5
Supply	"	163.9	167.9	174.2	168.9	170.9	175.4
Disappearance	"	138.5	142.9	146.1	148.8	144.0	N.A.
Roughage-consuming animal units (RCAU)	Mil. units	89.9	91.8	90.2	89.3	85.9	83.3
Supply per RCAU	Tons	1.82	1.83	1.93	1.89	1.99	2.11
Disappearance per RCAU	"	1.54	1.56	1.62	1.67	1.68	N.A.

1/ August 1985 crop indications. 2/ Forecast. N.A.-Not available.

Table 19.--Annual hay production, pasture-range index (August 1), and prices received by farmers, 1980-85

Year	North-east	Lake States	Corn Belt	Northern Plains	Appa-lachian	South-east	Delta States	Southern Plains	Mountain	Pacific	United States 1/
						Thousand tons					
1980											
Hay production	12,672	23,378	21,861	18,882	7,929	2,806	2,828	7,830	19,234	13,320	130,740
Pasture-range index	74	73	66	42	74	64	56	41	76	91	60
1981											
Hay production	12,682	23,025	24,118	23,023	8,490	3,139	3,750	10,470	20,527	13,296	142,520
Pasture-range index	84	82	90	76	88	65	82	78	78	89	82
1982											
Hay production	13,150	25,364	23,674	26,391	8,845	3,631	3,950	10,224	20,767	13,243	149,241
Pasture-range index	83	87	89	92	87	88	85	80	85	86	86
1983											
Hay production	12,901	24,986	19,229	24,625	7,644	3,116	3,524	11,202	20,429	13,108	140,764
Pasture-range index	75	79	63	84	69	66	80	72	88	96	77
1984											
Hay production	13,539	26,495	24,207	26,206	9,701	3,905	3,667	8,971	20,203	13,887	150,781
Pasture-range index	91	82	77	80	84	84	70	50	84	88	75
1985											
Hay production	13,223	24,174	23,262	23,045	10,613	3,661	3,872	13,171	19,258	14,194	148,473
Pasture-range index	80	65	73	59	78	76	73	78	66	67	70

Mid-July prices	Penn-sylvania	Wis-consin	Iowa	Kansas	Kentucky	Arkansas	Texas	Colorado	Cali-fornia	United States
						Dollars per ton				
1980	48.50	37.50	48.50	48.50	53.50	42.00	57.50	55.50	95.00	67.00
1981	80.00	56.50	49.00	58.00	63.00	53.50	59.00	66.00	71.00	64.00
1982	87.00	65.00	52.00	50.00	64.00	43.00	69.00	68.00	83.00	66.10
1983	75.00	68.00	54.00	59.00	70.00	44.00	72.00	66.00	91.00	71.20
1984	84.00	65.00	63.00	66.00	76.00	59.00	97.00	70.00	74.00	72.60
1985	66.00	77.00	42.00	58.00	71.00	51.00	71.00	67.00	83.00	68.80

1/ U.S. price weighted by regional production.

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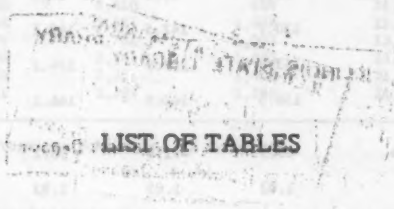

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